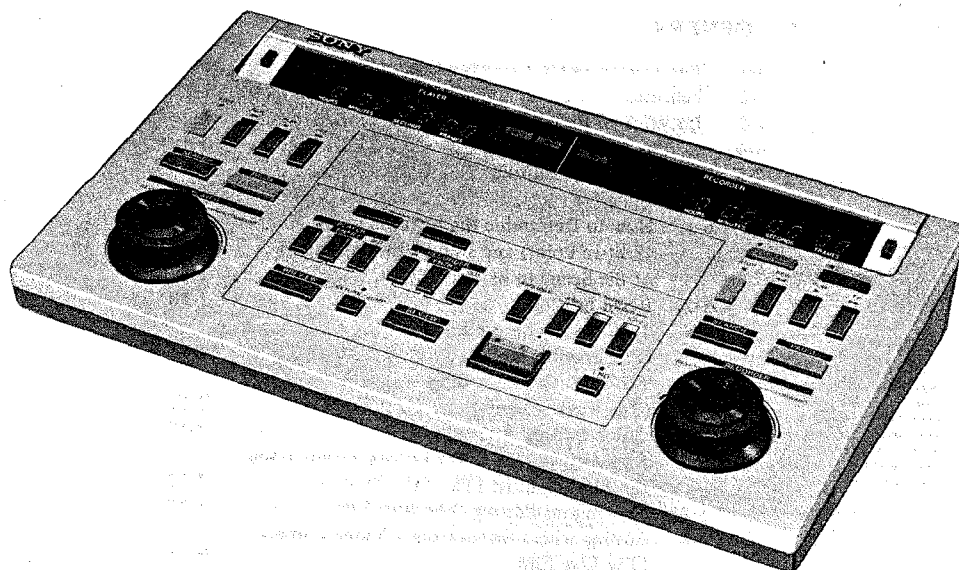


**SPECIFICATIONS**

Automatic controls: PREVIEW, AUTO EDIT (INSERT/ASSEMBLE), RETURN/JUMP, REVIEW, END

Manual controls: Recorder: RECORD/EDIT
Player/Recorder: FAST FORWARD, STOP, REWIND, PAUSE, SEARCH (Reverse x 2 to 0 to forward x 2, and picture search or Betascan)

Frame modification: Edit-in and edit-out points, possible on the player and/or recorder separately (impossible in the automatic mode)

Digital time counter: NTSC system: -9 hours 59 min. 59 sec. 29 frames to +9 hours 59 min. 59 sec. 29 frames
PAL/SECAM system: -9 hours 59 min. 59 sec. 24 frames to +9 hours 59 min. 59 sec. 24 frames (indicated on both the player and recorder)

Editing accuracy:

	SLO-383	VO-2860
Editing without Previewing	±3 frames	±5 frames
Editing with Previewing	±5 frames	±9 frames

Connectors: PLAYER/RECORDER 33-pin connector
Power requirements: 6.8V dc (supplied from the videocassette recorder)

Power consumption: 5W

Operating temperature: 5°C to 40°C (41°F to 104°F)

Storage temperature: -20°C to +60°C (-4°F to +140°F)

Dimensions: Approx. 390 x 76.5 x 220 mm (w/h/d)
(15-3/8 x 3-1/8 x 8-3/4 inches)

Weight: Approx. 2.2 kg (4 lb 14 oz)

Accessory supplied: Cap 1

Optional accessory: Remote control cable RCC-5F
(33-pin to 33-pin, 5 m, 15 feet)
Remote control cable RCC-5E
(33-pin to 20-pin, 5 m, 15 feet)

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SECTION 1

GENERAL

1-1. THE VIDEOCASSETTE RECORDER USED WITH THIS UNIT

Use the Sony Videocassette Recorders equipped with the REMOTE connector (20-pin or 33-pin).

	As a recorder	As a player
Betamax recorder	SLO-383	SLO-383
U-matic recorder	VO-2860 series	VO-2860 series VP-2260

1-2. FEATURES

Editing of a Betamax videocassette tape

By connecting the SLO-383 Videocassette Recorder to this unit, the electronic editing on the Betamax videocassette tape (1/2 inch), which has been impossible by a conventional videocassette recorder, becomes possible. The electronic editing on the U-matic tape (3/4 inch) is, of course, possible.

Search dial for finding editing points easily and quickly

The playback speed can be changed continuously from still to high in both forward and reverse direction.

A high-speed playback picture can also be monitored (Betascan). The editing points may be found easily and quickly by watching the picture.

Edit point memory system

The edit-in points for the playback machine and the recording machine and one edit-out point for either machines can be memorized.

Assembly and insert editing

In the assembly editing mode, the video, audio channel 1 and channel 2 signals can be edited simultaneously. In the insert editing mode, the video, audio channel 1 and channel 2 signals are independently selectable and any combination may be used.

Editing rehearsal "PREVIEW"

By pressing the PREVIEW button, it is possible to rehearse the edited state before actual editing.

Accurate review

By pressing the REVIEW button, it is possible to review the edited result just after actual editing of one portion.

Quick preview and review

By pressing the RETURN/JUMP button, the edit-in point can be monitored in the preview mode quickly and the edit-out point in the review mode. Therefore, the editing state can be checked quickly.

"BUTT" edit (continuous editing)

It is possible to continue the editing on the recorder by determining the previous edit-out point as the next edit-in point instead of re-entering the next edit-in point.

Cue signal for camera editing

This unit is equipped with the CUE OUT connector which provides the cue signal for camera recording.

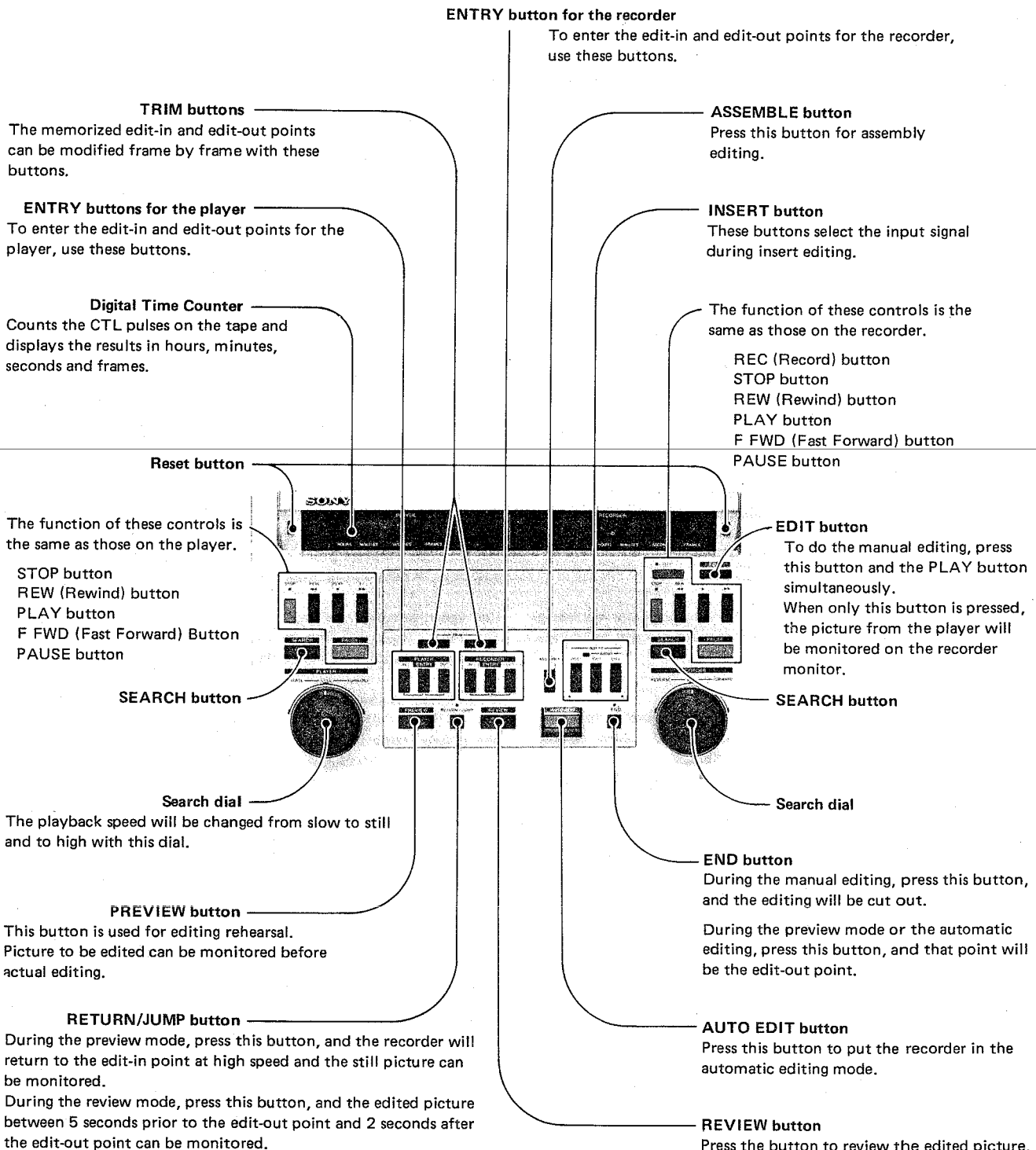
Modification of the editing points

The TRIM function makes it possible to modify the edit-in and edit-out points frame by frame. Therefore, the editing points can be determined accurately.

Automatic tape protection

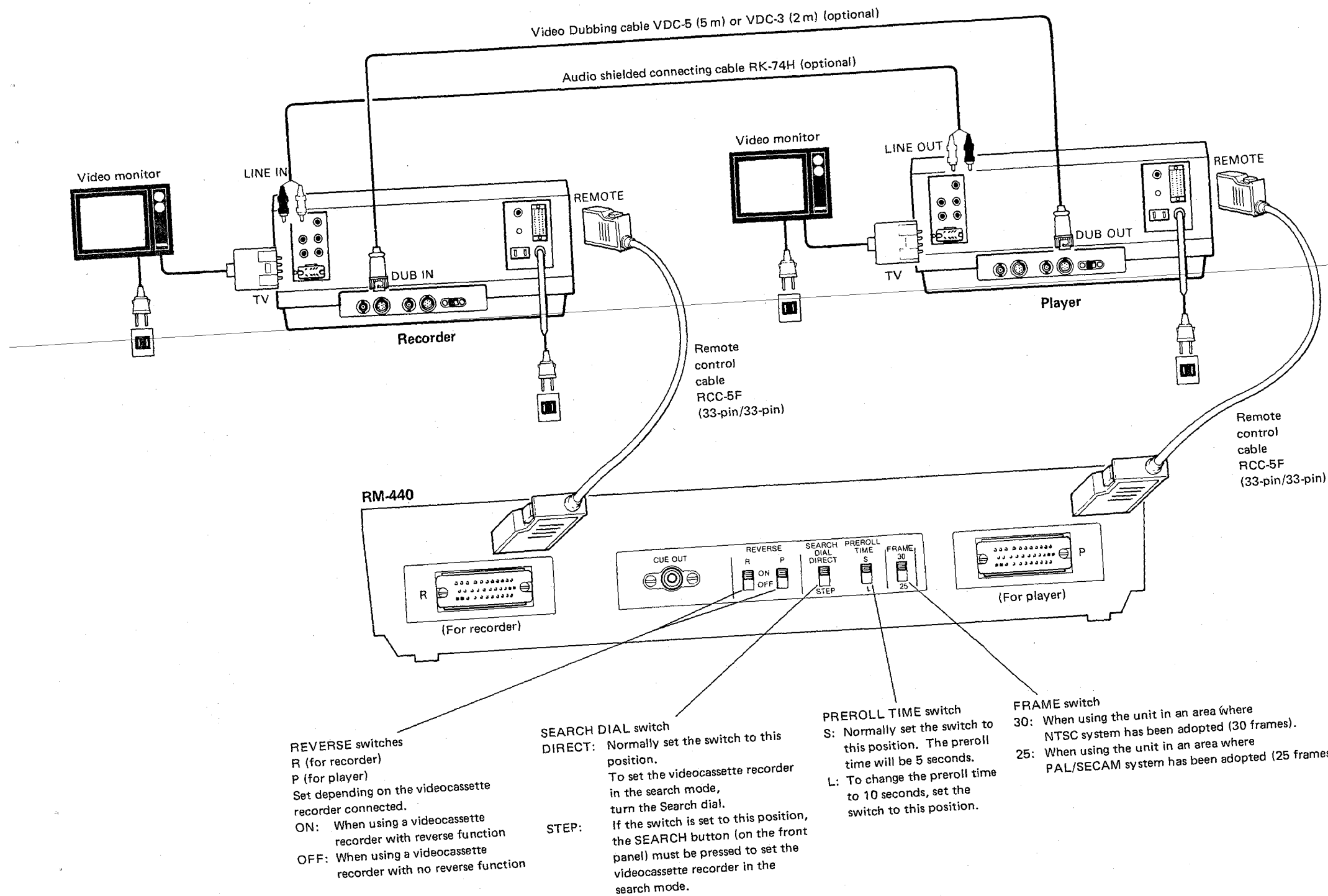
During editing, the PAUSE mode of the recorder is automatically released after 6 minutes holding and the tape is forwarded with the minimum search speed, which protects the video head and tape from being damaged.

1-3. LOCATION OF PARTS AND CONTROLS

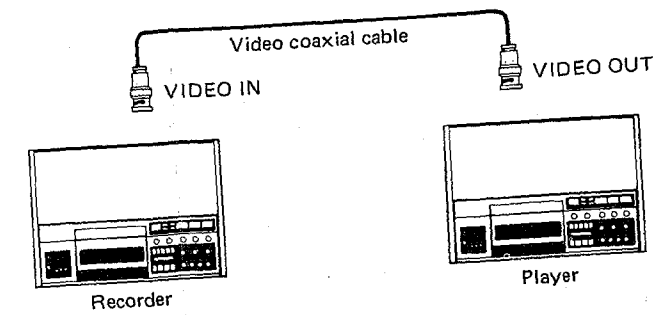


1-4. CONNECTIONS

The illustration shows the SLO-383 Videocassette Recorders being used. Connections with other videocassette recorders are similar.

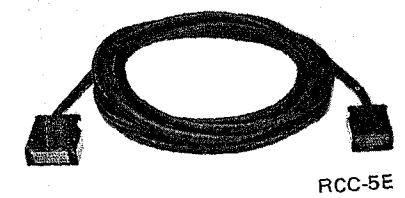


If a videocassette recorder which is not equipped with the DUB connector is used as a playback machine, use the VIDEO IN and OUT connectors instead of the DUB connector.



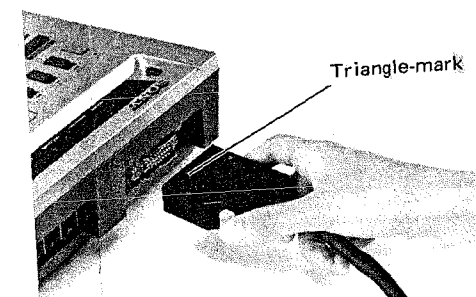
- For best quality pictures, however, we recommend using the DUB connector.
- Do not make simultaneous (parallel) connections with the DUB IN connector on the playback machine and the DUB OUT connector on the recording machine.

The RCC-5E Remote Control Cable (20-pin/33-pin, optional) to connect videocassette recorders with a 20-pin REMOTE connector.

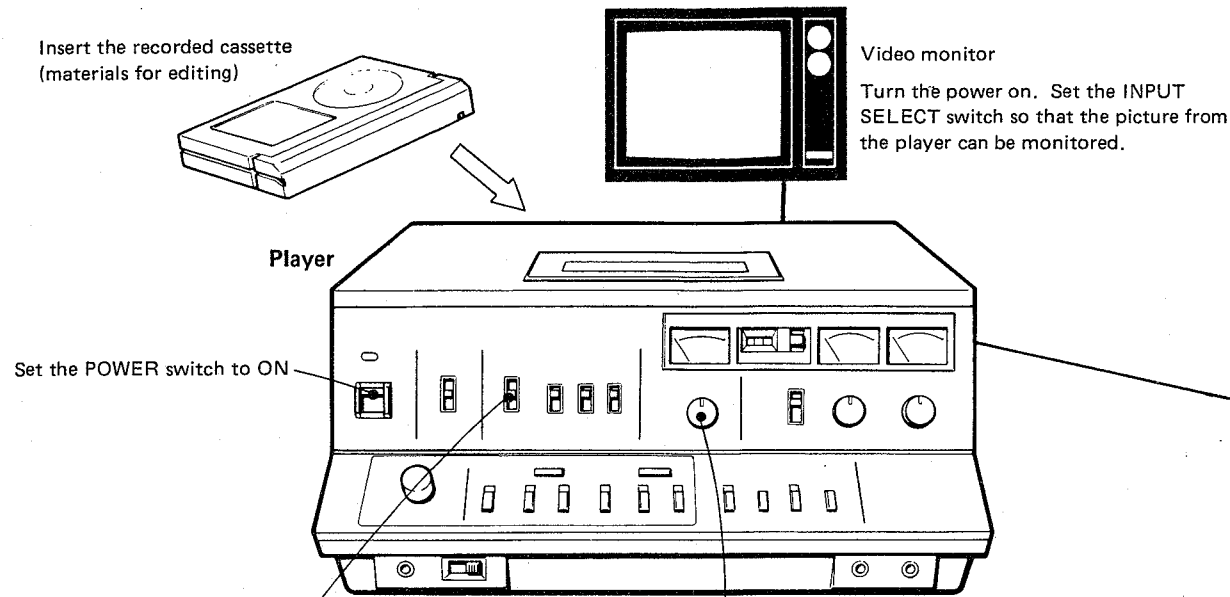


RCC-5E

- Insert the connector with the button on the left side.
- To disconnect, press the button in and pull the connector out.

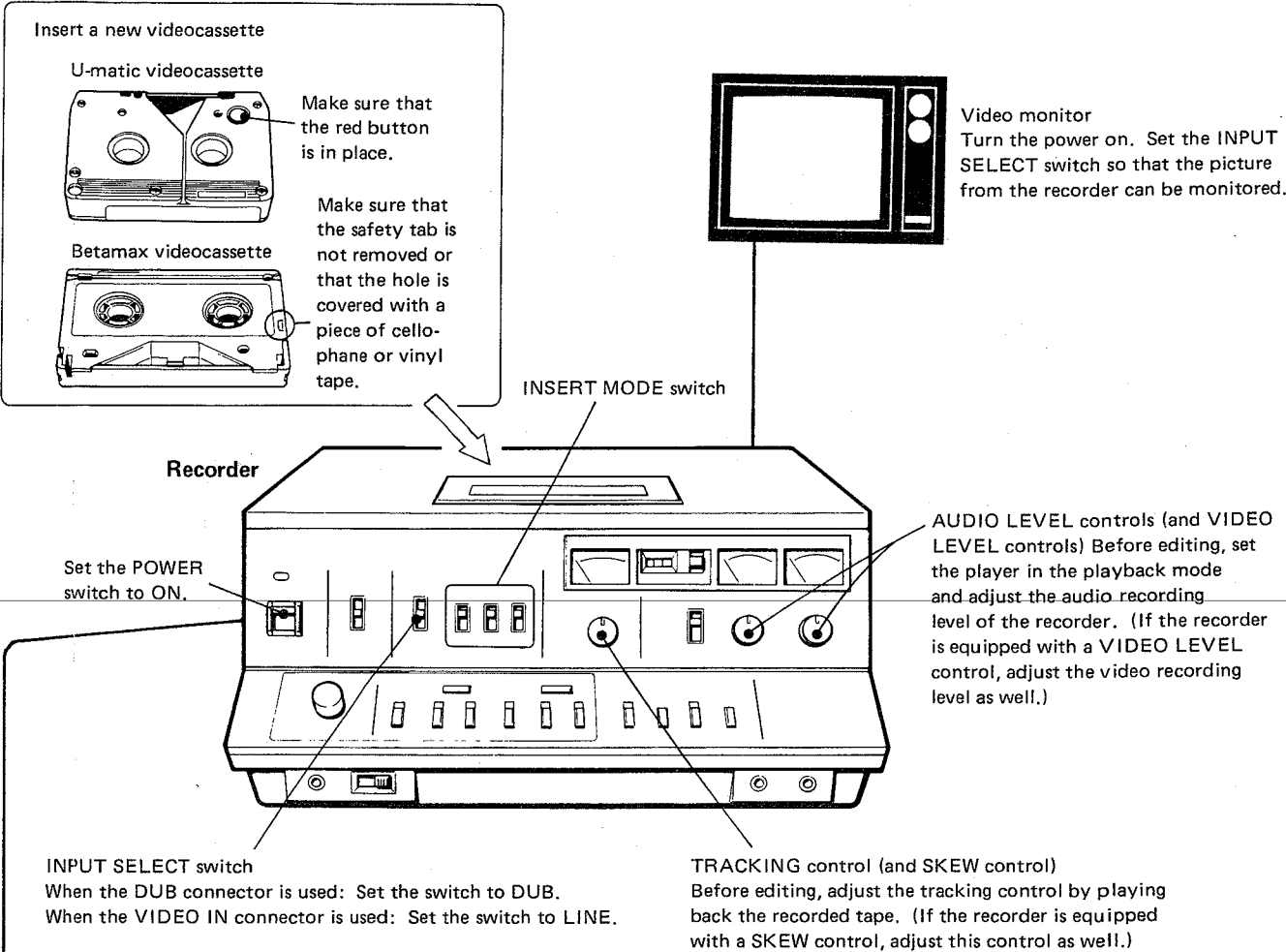


1-5. PREPARATION FOR EDITING

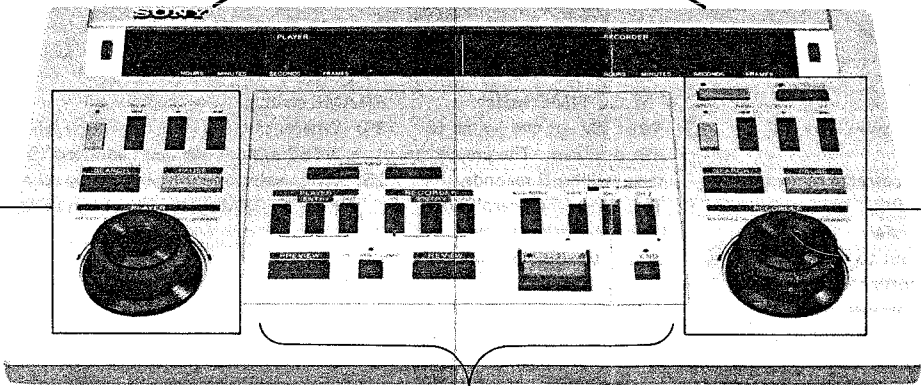


INPUT SELECT switch
Set this switch to the position which indicates where the external video input signal is connected. If switching noise appears on the playback picture, set this switch to the position where no external video input signal is applied. The player will then operate with the internal sync signal. For example, the TV off-air signal from a receiver/monitor may contain switching noise and cause an unstable playback picture so that, if a receiver/monitor is connected, this switch must be set to LINE or DUB or the TV receiver must be disconnected.

TRACKING control (and SKEW control)
Before editing, adjust the tracking control by playing back the tape. (If the VTR is equipped with a SKEW control, adjust this control as well.)



Operating buttons for player
With these buttons the player can be remotely controlled



Operating buttons for recorder
With these buttons the recorder can be remotely controlled.

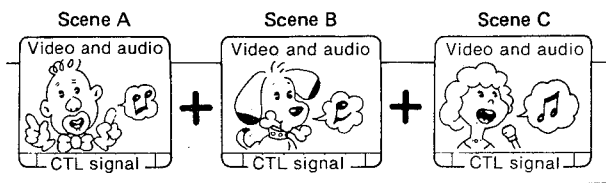
Operating buttons for automatic editing operations

1-6. EDITING

- ASSEMBLY EDITING
- INSERT EDITING

ASSEMBLY EDITING

In the assembly edit mode, all the signals—video, audio channel 1 and channel 2 and CTL signals—are recorded on the tape simultaneously. First record the video, audio and CTL signals of scene A and then record the video, audio and CTL signals of scene B, scene C, scene D and so on.

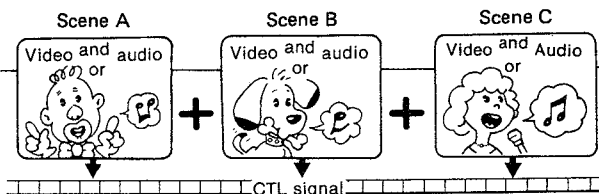


The assembly edit mode is the mode to use when new video and audio signals are going to be recorded shot by shot in the sequence they were taken.

If the new material is edited on a previously recorded tape in the assembly mode, the fully erased portion will be produced on the tape after the edit-out point and the picture will be unstable at that point. If this is unacceptable, edit in the insert edit mode.

INSERT EDITING

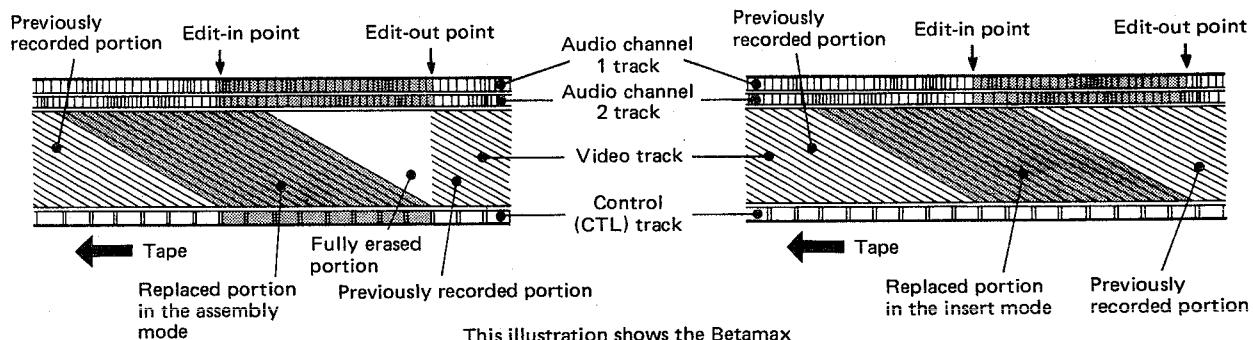
In the insert edit mode, the CTL signal should have already been recorded. New video and/or audio signals are added keyed to this CTL signal.



The insert edit mode is the mode to use when you want—

- to add music and/or narration to a tape on which the video signal has been already recorded.
- to add video signal to a tape on which an audio signal has been already recorded.
- to replace the video and/or audio signals of a tape which has been edited in the assembly mode.

In the insert edit mode, a new scene can be inserted into a previously recorded tape. The picture will be stable at the edit-out point.



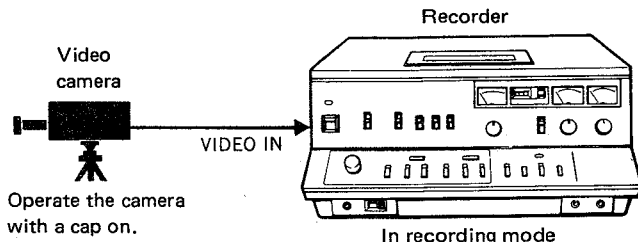
This illustration shows the Betamax recording track pattern.

TO RECORD ON A NEW TAPE IN THE INSERT MODE

A CTL signal must be recorded on the tape to be recorded in the insert mode. To record the CTL signal:

- Connect a video camera and continuously record its output signal.
- Connect a standard video signal generator and continuously record its output signal.

The CTL signal should be recorded continuously in the portion to be recorded and for at least 5 seconds (10 seconds, if the PREROLL TIME switch is at the L position) prior to and after that portion.



TO RECORDED ON A NEW TAPE IN THE ASSEMBLY MODE

It is not necessary to record the CTL signal in advance, but if the assembly edit is to be made from the beginning of the new tape or after a blank on the tape, a CTL signal has to be recorded for at least 5 seconds (10 seconds, if the PREROLL TIME switch is at the L position) prior to the first edit-in point. Instead of recording a CTL signal, you may simply duplicate the tape in the record mode.

TO PERFORM INSERT EDITING

<When using a recorder equipped with 33-pin REMOTE connector>

1. Set the INSERT MODE switches on the videocassette recorder being used as a recording machine to the OFF position so that the insert mode can be turned on and off by the RM-440.
2. Select the desired input signal with any or all of the INSERT buttons of the RM-440. Pressing a button turns it on (the lamp lights) and pressing it again turns it off (the lamp goes off). If the ASSEMBLE lamp is lit, press the ASSEMBLE button to turn off the lamp and then press the INSERT button(s).

<When using a recorder equipped with 20-pin REMOTE connector>

1. The input signal cannot be selected by the RM-440. Select it with the INSERT MODE switches on the videocassette recorder being used as a recording machine.
2. Press one of the INSERT buttons on the RM-440. There are three INSERT buttons-VIDEO, AUDIO CH-1 and AUDIO CH-2 on the RM-440. When one of the buttons is pressed, the AUDIO CH-1 lamp lights, indicating that the recorder is now in the insert mode.
 - When using a recorder equipped with 20-pin REMOTE connector, put the supplied cap over the VIDEO and CH-2 INSERT buttons so that only the CH-1 button and lamp are visible.
To attach the cap, bore the holes in the front panel dints with a gimlet or similar and attach to the holes.

1-6-1. How to Determine the Beginning (Edit-In Point) and End (Edit-Out Point) of the Scene to be Recorded

«PLAYER»

● EDIT-IN POINT

1. To set the player in the playback mode, turn the Search Dial.
 - If the videocassette recorder does not operate by turning the Search dial, press the SEARCH button and then turn the Search dial.
 - If the videocassette recorder has no reverse function, it will not go in reverse even if the dial is turned to the reverse side. Use the REW button to reverse the tape.
2. Locate the point where the scene is to start by watching the video monitor.
3. At the desired edit-in point, set the Search dial to the 0 position to pause the tape.

4. Simultaneously press the IN and ENTRY buttons for the player to enter this edit-in point.
 - The IN lamp will stop blinking and will light up. At this time the numbers on the Time Counter are memorized in this unit as the edit-in point.
 - The first edit-in point should be at least 5 seconds after the beginning of the tape. (At least 10 seconds when the PREROLL TIME switch is set to the L position.)
 - To re-enter the edit-in point, locate the desired point and press the IN and ENTRY buttons again.

● EDIT-OUT POINT

1. Locate the point by turning the Search dial where the scene is to end by watching the video monitor.
2. At the desired edit-out point, set the Search dial to the 0 position.
3. Simultaneously press the OUT and ENTRY buttons for the player to enter the edit-out point.
 - The OUT lamp will stop blinking and will light up to indicate that the edit-out point is memorized.
 - The edit-out point for the assembly editing should be determined on the player.

NOTE: The IN and OUT lamps blink alternately if the same point is entered as the edit-in point and edit-out point or if the edit-out point is entered before the edit-in point, so editing or previewing cannot be done. Enter the edit-in and edit-out points correctly.

«RECORDER»

● EDIT-IN POINT

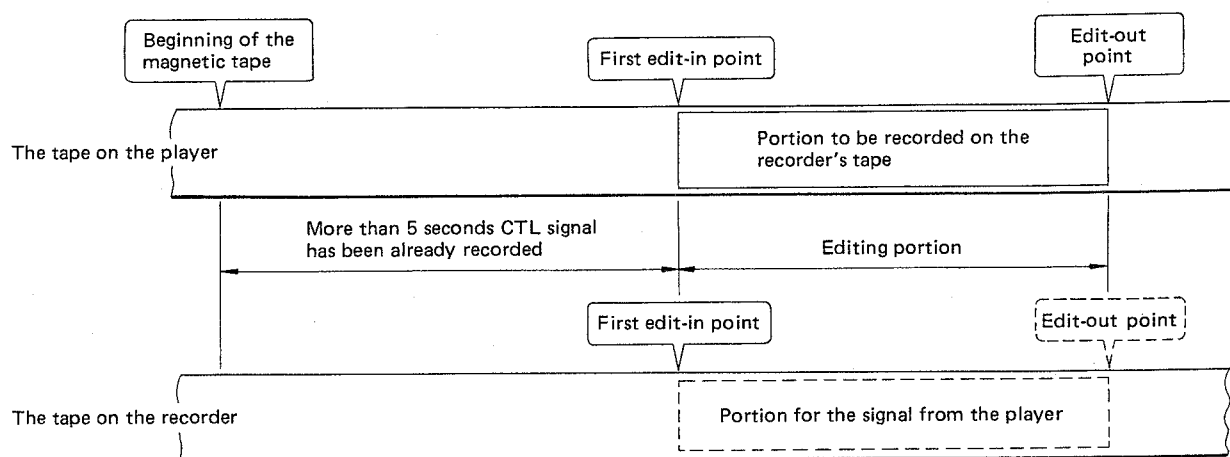
1. Locate the point by turning the Search dial where the scene is to start by watching the video monitor. Set the Search dial to the 0 position at this point.
2. Simultaneously press the IN and ENTRY buttons for the recorder to enter the edit-in point.
 - The IN lamp will stop blinking and will light up.
 - The first edit-in point should be at least 5 seconds after the beginning of the tape. (At least 10 seconds when the PREROLL TIME switch is set to the L position.)

● EDIT-OUT POINT

The edit-out point into either the player or the recorder should be entered. The OUT lamp of either one will light. If the edit-out point is to be entered into the recorder, proceed as follows:

1. Locate the point by turning the Search dial where the scene is to end by watching the video monitor and set the dial to the 0 position.
2. Simultaneously press the OUT and ENTRY buttons for the recorder to enter the edit-out point.

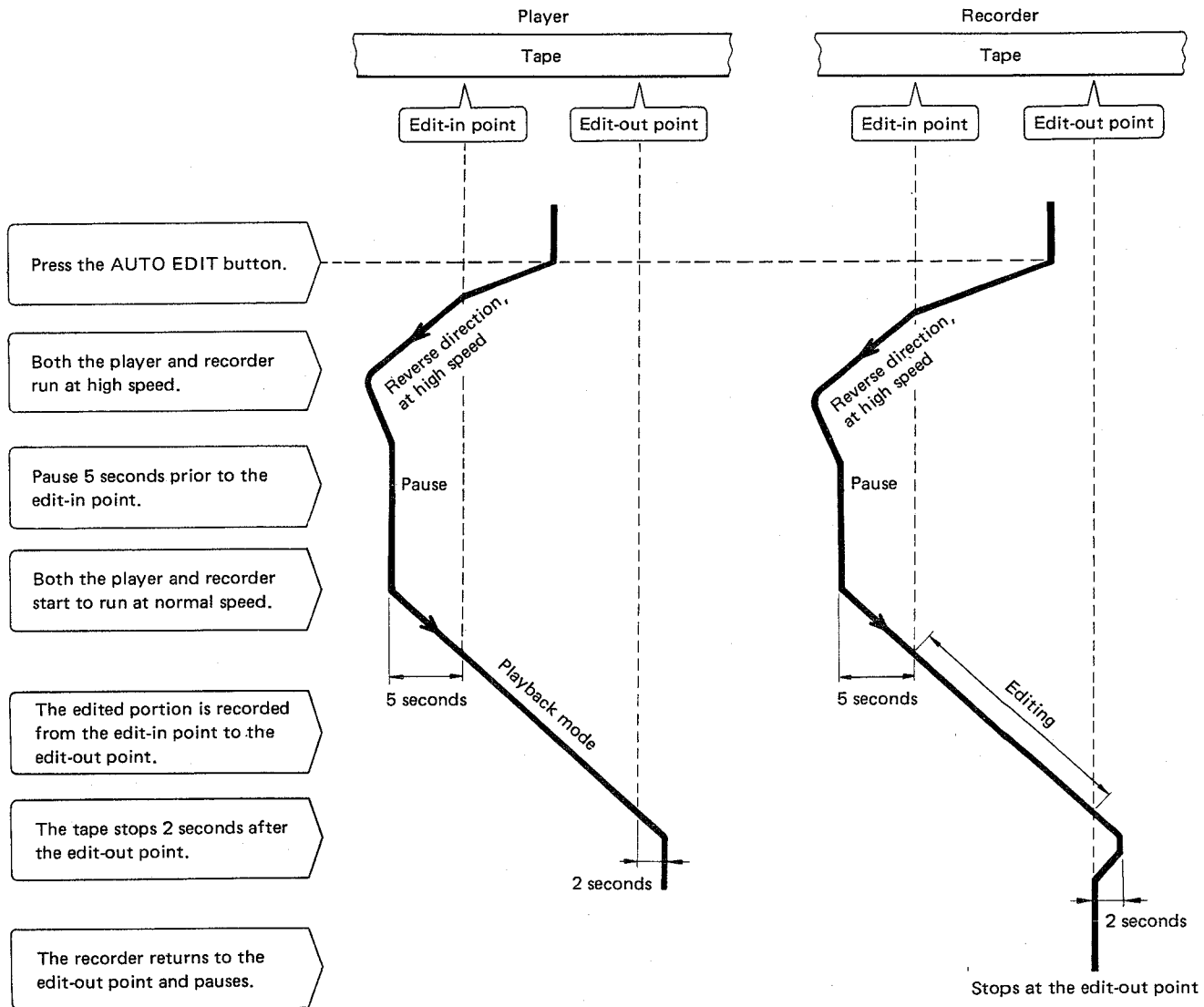
NOTE:



1-6-2. Begin Editing

Press the AUTO EDIT button.

Editing will automatically proceed as in this diagram.



TO MONITOR DURING RECORDING

You can monitor the recording from 5 seconds prior to the edit-in point to 2 seconds after the edit-out point on the video monitor connected to the recording machine.

TAPE TRAVEL BEYOND THE EDIT-OUT POINT

Recording:

In the assembly editing mode, the recording will continue 2 seconds after the edit-out point. Then the tape will return to the edit-out point and a still picture of that point will be displayed.

In the insert editing mode, the recording will end at the edit-out point, but the tape will run for 2 more seconds. Then the tape will return to the edit-out point and a still picture of that point will be displayed.

Playback:

The tape will run for 2 more seconds after the edit-out point, then it will stop and a still picture will be displayed.

TO STOP DURING RECORDING

To stop the recording before the edit-out point, press the END button.

The point where the END button has been pressed becomes the new edit-out point.

WHEN THE RECORDING IS FINISHED

When the recording of one scene (from the edit-in point to the edit-out point) is finished, search for and enter the edit-in and edit-out points for the next scene.

TO CHANGE THE PREROLL TIME

The 5 seconds prior to the edit-in point (the preroll time) can be changed, if necessary, to 10 seconds by means of the PREROLL TIME switch on the rear panel of this unit.

1-6-3. To Rehearse Before Editing (The Preview Mode)

Once the edit-in and edit-out points have been set, you can conduct a rehearsal by pressing the PREVIEW button.

1. After the edit-in and edit-out points have been set, press the PREVIEW button.
Both the player and recorder start to operate as in the editing modes.
2. Watch the recorder's monitor.
Both the player and recorder run up to 2 seconds beyond the edit-out point and then stop. The scene will not actually be recorded, but watching the recorder's monitor you can check that the edit-in and edit-out points are correct and that the quality of the picture to be recorded is good.
This is possible because the video input signal to be recorded is frequency-modulated, then demodulated in the recorder for display on the monitor.
3. If necessary, re-enter the edit-in and edit-out points and check them again.
4. If the edit-in and edit-out points are correct, press the AUTO EDIT button. The recording will begin.
 - * If a recorder equipped with a 20-pin remote connector is used as a recorder in the assembly mode, the recorder will stop at the edit-in point and pause. The monitor for the recorder will show the preview picture.

TO CHECK ONLY THE EDIT-IN POINT (THE RETURN MODE)

Use the Return mode to preview the edit-in point.

1. During preview mode, at any time after the edit-in point, press the RETURN/JUMP button.
The RETURN lamp lights. The preview mode is stopped, both the player and recorder will return to the edit-in point and a still picture will be shown.
2. If necessary, press the PREVIEW button to conduct a preview.

TO STOP THE PREVIEW MODE

Press the PAUSE button for the player and recorder on the RM-440.

1-6-4. To Check The Recording (The Review Mode)

When the recording of one scene (from edit-in point to edit-out point) has been finished, the result can be checked by means of the REVIEW button.

1. After the recording has been made, press the REVIEW button.
The REVIEW lamp will light up.
Only the recorder operates in the same manner as in the editing mode.
The player does not operate.
2. Watch the recorder's monitor. The recorded picture from 5 seconds prior to the edit-in point to the 2 seconds after the edit-out point will be displayed.
When the review is finished, the recorder returns to the edit-out point.

To stop the review mode, press the PAUSE button.

TO CHECK THE EDIT-OUT POINT QUICKLY (THE JUMP MODE)

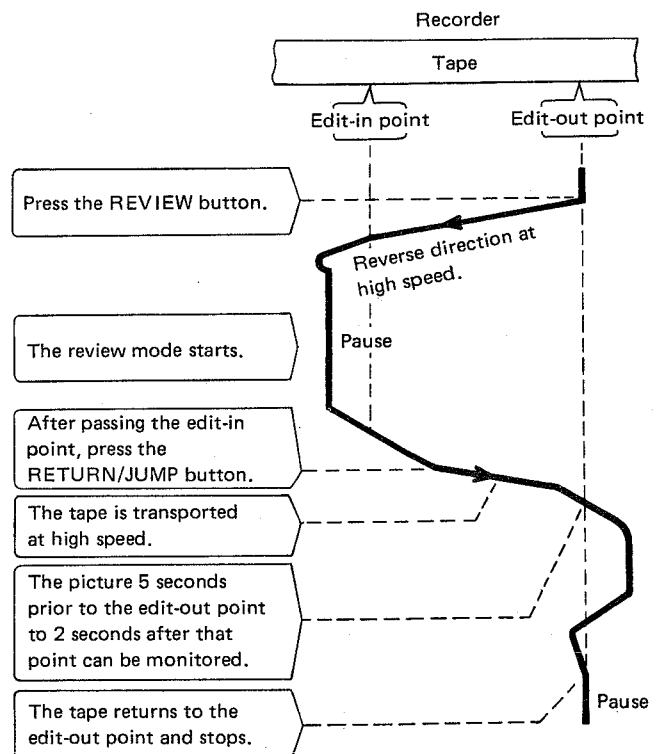
During the review mode, the recorded portion can be advanced rapidly and the edit-out point can be checked by using the jump mode.

During the review mode, at any time after the edit-in point, press the RETURN/JUMP button.

The JUMP lamp lights. The review mode is stopped and the tape runs at high speed until it reaches a point 5 seconds prior to the edit-out point. From this point the tape runs at normal playback speed to a point 2 seconds after the edit-out point showing a picture on the monitor screen.

After playback, the recorder returns to the edit-out point and a still picture is displayed.

- If the recorder does not have the high speed playback function, the jump mode cannot be obtained.



1-6-5. Quick Editing

You can edit more quickly by entering the edit-in and edit-out points during preview as follows.

1. Search for the point where the scene is to start for the player and recorder by turning their Search dials. Set the dials to their 0 positions to pause the tape.
2. Press the PREVIEW button and the position you have chosen in step 1. will be memorized as an edit-in point for both the player and recorder. The IN lamp will light. The preview will start.
3. Search for the point where the scene is to end by watching the picture on the monitor. Press the END button at the desired point, which will then be memorized in the player as the edit-out point. The OUT lamp will stop blinking and will light. After 2 seconds both the player and recorder will pause.
4. Preview the tape and, if necessary, change the edit-in or edit-out point.
5. Press the AUTO EDIT button to perform the editing.

TO SET THE EDIT-OUT POINT MORE PRECISELY

After the step 3. has been finished, search for the edit-out point for the player by turning the Search dial and re-enter the edit-out point by pressing the ENTRY and OUT buttons. Then press the AUTO EDIT button to edit.

TO EDIT EVEN MORE QUICKLY

You can edit without entering the edit-in and edit-out point.

1. Search for the point where the scene is to start by turning the Search dials for both the player and recorder and set the dials to their 0 positions to pause the tape.
2. Press the AUTO EDIT button. Recording will begin from that point which will be the edit-in point.
3. At the desired point, press the END button. The recording will stop at this point, which will be the edit-out point.

1-6-6. Fine Adjustment of the Editing Points Using the Time Counter (The Trim Mode)

To set the edit-in point and edit-out point precisely, it is possible to change the editing points one frame at a time.

1. Press the IN or OUT button and hold it down through step 2. The frame number of the edit-in or edit-out point will be displayed on the time counter.
2. Press and release the TRIM + button to advance the editing point one frame and press and release the TRIM - button to set the editing point back one frame. The number on the time counter will change according to the movement of the frame.

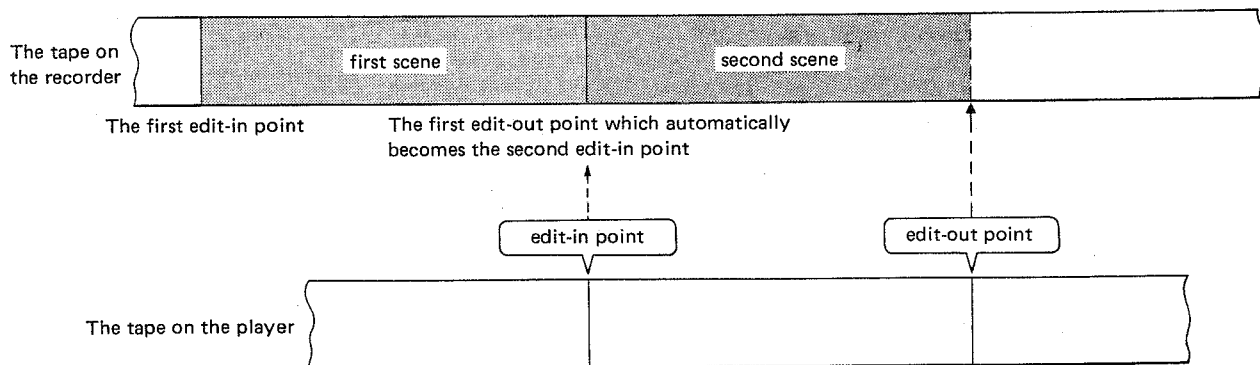
1-6-7. Continuous Editing (The Butt Edit)

When you have finished recording from an edit-in point to an edit-out point, the recorder returns to the edit-out point and stops. You can make this edit-out point the next edit-in point for the recorder and so Butt edit.

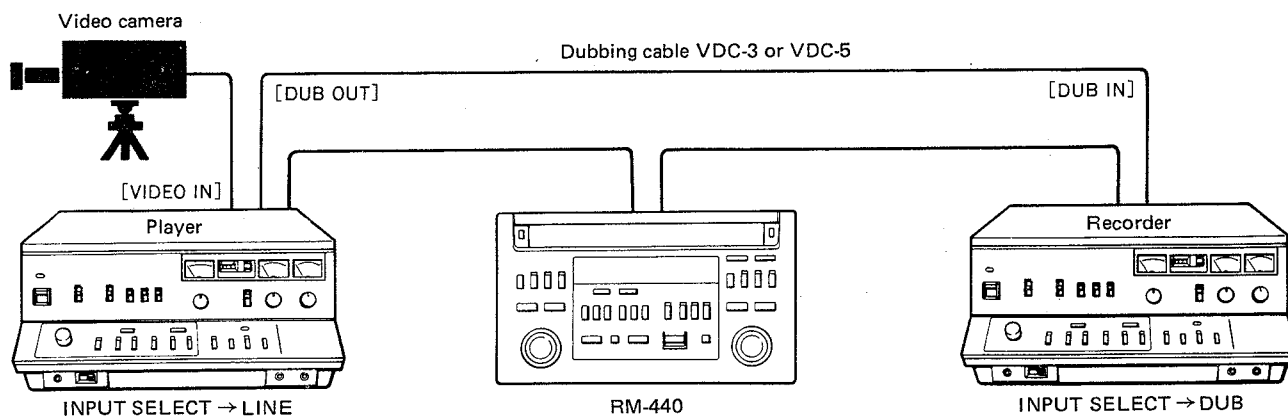
1. Search for and enter the next edit-in and edit-out points for the player.
2. Press the AUTO EDIT button. The editing will be performed.

Or you may proceed as follows:

1. Search for and enter the next edit-in point for the player.
2. Press the AUTO EDIT button. The recording will be performed.
3. To stop recording, press the END button. This point will be the edit-out point.



1-6-8. Editing with a Signal from a Video Camera (The Live Edit)



CONNECTIONS

To record while editing using a signal from a video camera and signal from a player:

Make the connections as shown in the illustration.

When the player is set in the playback mode, the playback signal of the tape will be supplied to the recorder. When the player is set in the stop mode, the signal from the video camera will be supplied to the recorder.

To record while editing a signal from a video camera only:

Connect a video camera to the VIDEO IN connector of the recorder. Set the INPUT SELECT switch of the recorder to LINE.

OPERATION

Set the player in the stop mode.

Assembly edit: Enter only the edit-in point of the recorder and start recording the camera signal with the AUTO EDIT button. To stop the recording, press the END button.

Insert edit: Enter the edit-in and edit-out points of the recorder and start recording with the AUTO EDIT button. If the recording is begun without entering the edit-out point, stop the recording by pressing the END button.

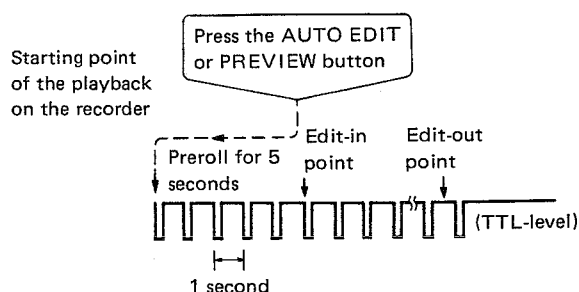
- During the preview of the live edit in the assembly mode, the edit-out point cannot be entered.

CUT OUT CONNECTOR ON THE REAR PANEL

When the RM-440 is set in the AUTO EDIT or the PREVIEW mode, the CUE signal will be applied from this connector from 5 seconds prior to the edit-in point to the edit-out point to the recorder as illustrated.

This signal can be used as a tally signal for a video camera or as a starting signal for an audio tape recorder.

- If the CTL signal is not recorded on the recorder's tape, the cue signal is not applied.



1-6-9. Manual Editing

CONNECTIONS

Same as the connections for automatic editing.

SELECTION OF THE MODE

<When using the recorder equipped with 33-pin REMOTE connector>

Select the desired mode with the ASSEMBLE or INSERT button of this unit.

<When using the recorder equipped with 20-pin REMOTE connector>

Assembly edit: Press the ASSEMBLE button of the unit.

Insert edit: Select the insert mode on the videocassette recorder and press one of the INSERT buttons of this unit.

OPERATION

1. Rewind the tape for at least 5 seconds from the point where the scene is to start for both the player and recorder by watching the numbers on the time counters.
2. Start playback by pressing the PLAY buttons for both the player and recorder.
3. When the tape reaches the desired edit-in point, simultaneously press the EDIT button and the PLAY button for the recorder and the recording will start.
4. To stop recording, press the END button. The tape will still run. To stop the tape, press the PAUSE or STOP button.

- To obtain a perfectly stable playback picture, start the playback more than 5 seconds prior to the edit-in point.
- If the editing is started from the pause mode or is stopped by the PAUSE button, the picture will be unstable where the pause function has been activated.
- A still picture cannot be recorded.

1-7. USEFUL OPERATION

SEARCH DIAL

During operating this unit, if the Search dial is touched, the unit may be switched to the search mode. To prevent this, set the SEARCH DIAL switch (on the rear panel) to STEP and the Search dial will not work until the SEARCH button is pressed (the lamp lights). If the Search dial is set to the desired position, the desired speed playback will be obtained by pressing the SEARCH button. If the connected videocassette recorder is equipped with the Betascan (picture search) function and a 33-pin REMOTE connector, the unit is set into the Betascan mode by turning the Search dial clockwise or counterclockwise past the point where you feel a slight catch to the point where you hear a click sound. The click sound indicates that the recorder has assumed the Betascan mode. To release the Betascan mode, turn the Search dial past the catch position toward the 0 position.

TIME COUNTER

- The counter number indicates how much the tape has advanced at normal speed by hours, minutes, seconds and frames. It will be changed with the tape motion.
- To set the time counter to "0", press the reset button. For the reverse running from "0", "-" (minus) will be indicated.
- When the edit-in and edit-out points are entered into this unit, the counter number of these points will be memorized. Therefore, do not press the reset button until the editing of that portion is finished, otherwise, the entry will be cancelled.
- Set the counter number to "0" at the beginning of the player tape, start the playback and make a note of the counter number and the contents of the tape, and the note will be useful for searching the editing point. In this case, do not reset the counter for the player until all the editing on the tape is finished.
- The counter number indicates the number counting the CTL signal on the tape, therefore, when playing back a tape missing some CTL signals, an error on the number may be occurred. If you proceed rewind or fast forward operation many times, an error may cause on the counter number as well.
The counter number does not change with a new tape because no CTL signal is recorded on the new tape.

CALLING UP THE EDITING POINTS

While the IN or OUT button for the player and recorder is pressed, the respective IN or OUT lamp will blink quickly and the time counter will indicate the editing points by number so that they can be easily checked.

BLINK OF THE LAMPS

Operate the buttons above which the lamps are slowly blinking, and the editing can be completed. The blinking and lighting of lamps are as follows.

- The ASSEMBLE and INSERT (VIDEO, AUDIO CH-1, AUDIO CH-2) lamps blink slowly in the playback mode indicating that the editing mode is to be determined by pressing the appropriate button.
One or more lamps light indicating that the editing mode has been determined.

- The IN and OUT lamps for the player and recorder blink slowly indicating that the editing points must be entered.
The IN and OUT lamps light when the edit-in and edit-out points have been entered but the editing has not been performed.
The IN or OUT lamps blink rapidly when either the edit-in or edit-out point is called up.
- The PREVIEW and AUTO EDIT lamps blink slowly indicating that you can proceed either the preview or auto edit operation.
The PREVIEW or AUTO EDIT lamp lights to indicate that the recorder is in one of these modes.
- The END lamp blinks in the preview or auto edit mode, indicating that the edit-out point has not been entered.
The END lamp lights, indicating that the edit-out point has been entered.

RETURN/JUMP BUTTON

To return to the edit-in point after auto edit or review mode, press the RETURN/JUMP button. The time counter number of the edit-in and edit-out points can be called up.
The IN and OUT lamps light.

TAPE PROTECTION MODE

While either the player or recorder is searching the editing point, the videocassette recorder which has finished the entry may be waited for a long time. In this case, if the videocassette recorder stays in the PAUSE (or STILL) mode for a long time, it will be usually released and entered into the STOP mode. To avoid it and to protect the tape from being damaged, this unit features a safety device which makes the waiting videocassette recorder run automatically at extremely low speed (at minimum speed of the videocassette recorder), if the PAUSE (or STILL) mode continues more than 6 minutes.

During this mode, the memorized information is still retained, therefore the editing can be continued even in this mode.

This mode functions only when the edit-in or edit-out point is entered.

Otherwise the recorder will enter into the STOP mode if it is left in the pause mode for an extended period of time.

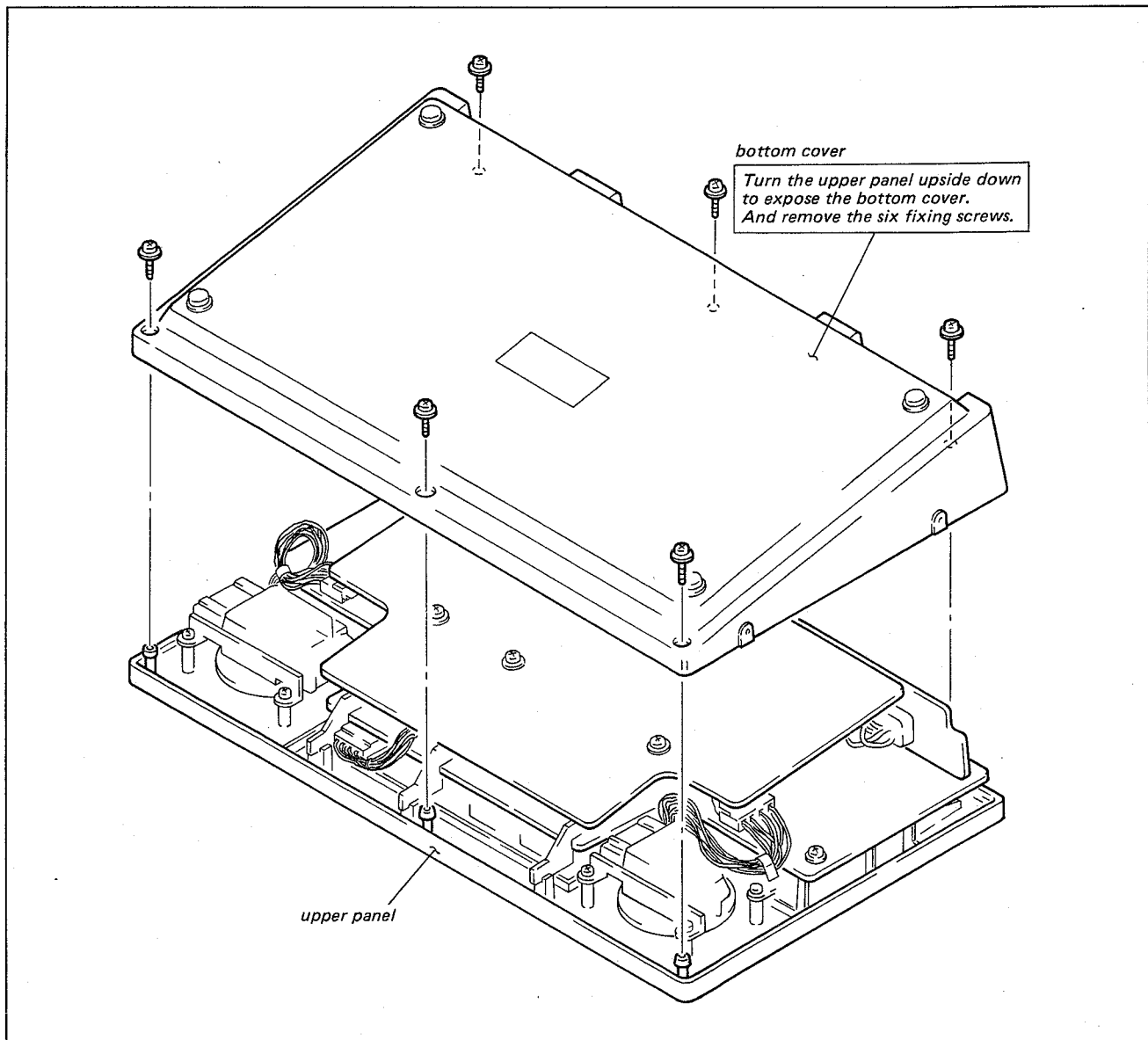
NOTE:

The videocassette recorder is designed to slack the tension on the tape in the stop mode to protect the tape from being damaged. So, if the SEARCH button is pressed with the Search dial at the 0 position when the videocassette recorder is in the stop mode, either the still picture on the monitor screen will be unstable or the recorder will re-enter the stop mode. To obtain a still picture from the recorder's stop mode, move the tape by pressing the PLAY button or by turning the Search dial, then stop the tape by pressing the PAUSE button or setting the Search dial to the 0 position.

SECTION 2

PRECAUTIONS AND OTHER INFORMATION

2-1. PANEL REMOVAL



2-2. SPARE PARTS

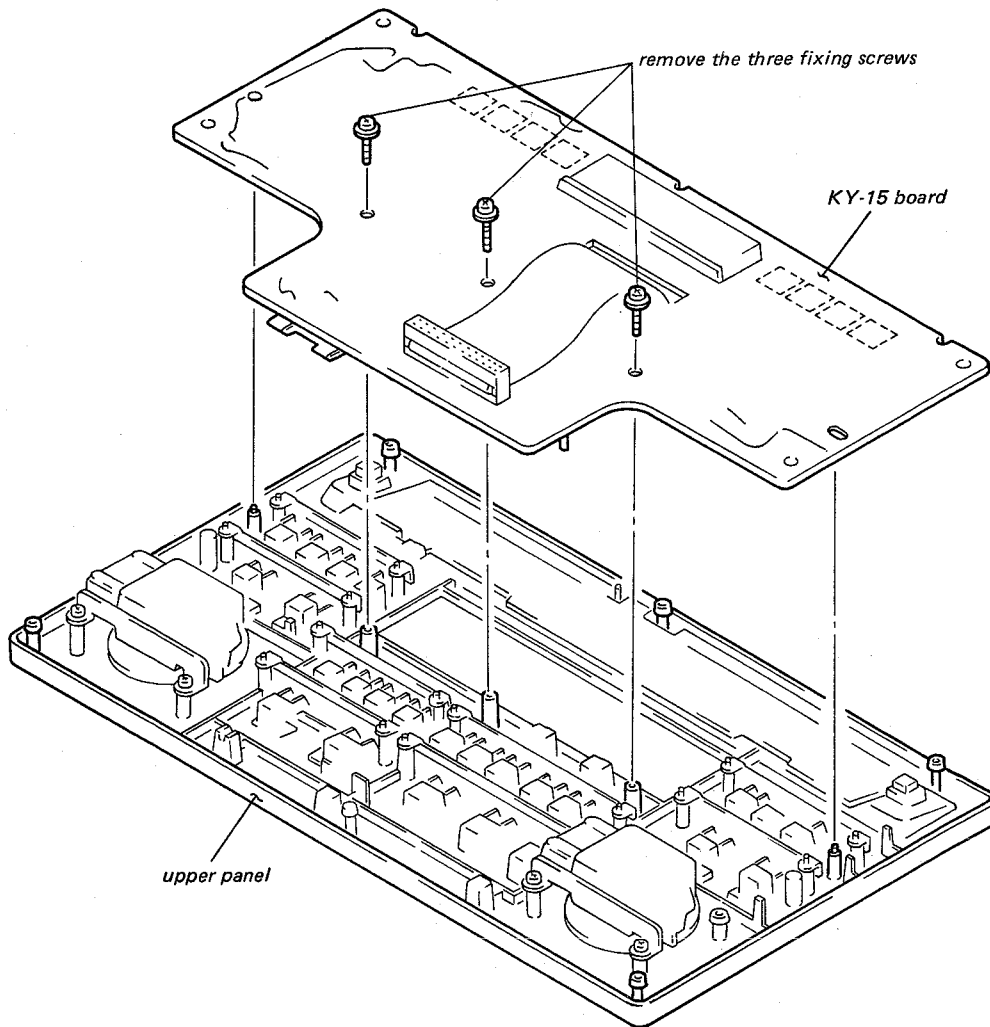
1. Safety Related Components Warning.
Components identified by shading marked with  on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose part numbers appear in this manual or in service bulletins and service manual supplements published by Sony.
2. Replacement Parts supplied from Sony Parts Center will sometimes have a different shape from the original parts. This is due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts."
3. Printed Components in Bold-Face type on the exploded views and electrical spare parts list are normally stocked for replacement purposes. The remaining parts are not normally required for routine service work. Orders for parts not shown in Bold-Face type will be processed, but allow for additional delivery time.

This manual's exploded views and electrical spare parts list indicate the parts numbers of "the standardized genuine parts at present".

Regarding engineering parts changes in our engineering department, refer to Sony service bulletins and service manual supplements.

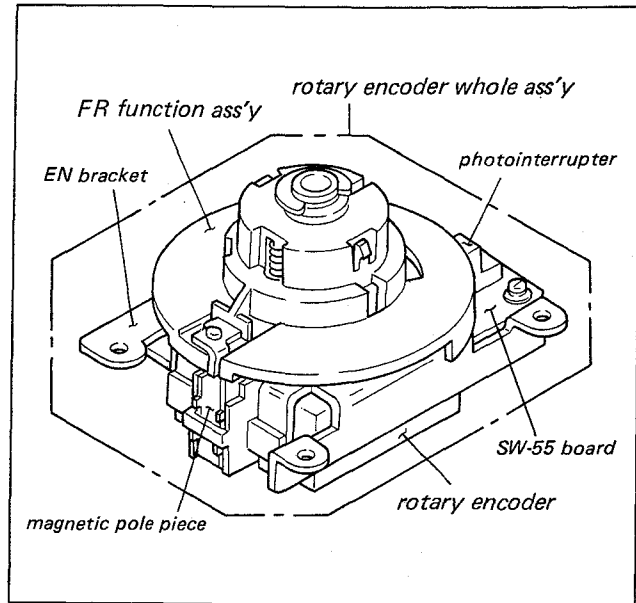
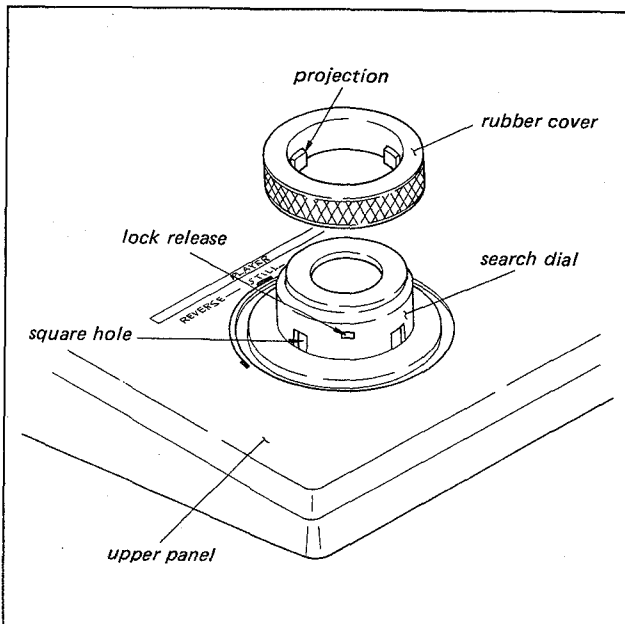
2-3. NOTE FOR KY-15 BOARD REMOVAL

1. If you want to remove the KY-15 board from the upper panel, perform the following procedure as show in the figure.
2. Don't turn the upper panel without KY-15 board upside down to expose the operating panel. If the upper panel is placed upside down, RESET, TRIM, REC and EDIT buttons are dropped off.



2-4. PROCEDURE OF ROTARY ENCODER UNIT REMOVAL

1. Remove the rubber cover from the SEARCH DIAL.
2. Install a 2 mm diameter flatblade screwdriver into the two holes as shown in the figure. And release the locks of claws. Remove the SEARCH DIAL from the assembly.
(NOTE) Don't push the screwdriver strongly. If the screwdriver is pressed strongly, the claw will be damaged.
3. Remove the four fixing screws of the rotary encoder from the upper panel.
(NOTE) When attaching the rubber cover to the SEARCH DIAL, place the four projections of the rubber cover to the lower side as shown in the figure. And install it to the SEARCH DIAL so that the projections matches to the square holes of the dial.



2-5-1. Replacement of Rotary Encoder

1. Loosen the setscrew of FR function ass'y. Remove the FR function ass'y.
2. Replace the rotary encoder.
3. Unsolder the six lead wires from the defective rotary encoder. And solder these wires to the new rotary encoder.
4. After replacement perform the sec. 2-5-3 FR Function Ass'y Mounting Position Adjustment.

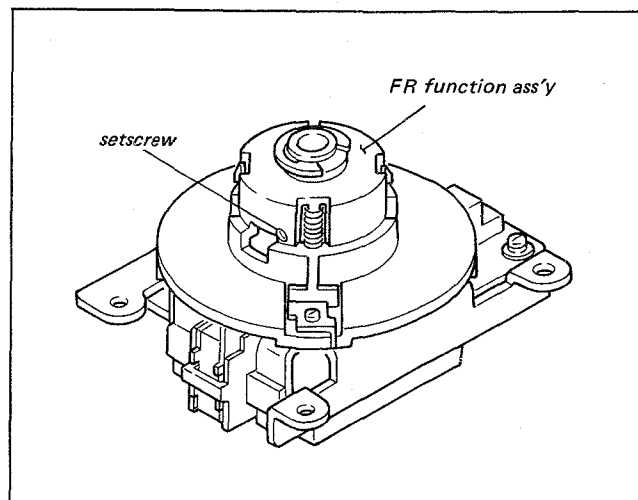
2-5-2. Replacement of FR Function Ass'y

1. Loosen the setscrew of FR function ass'y. Replace the FR function ass'y.
2. After replacement, perform the sec. 2-5-3 FR Function Ass'y Mounting Position Adjustment.

2-5. REPLACEMENT OF ROTARY ENCODER UNIT

The service parts of the rotary encoder unit are the following three units.

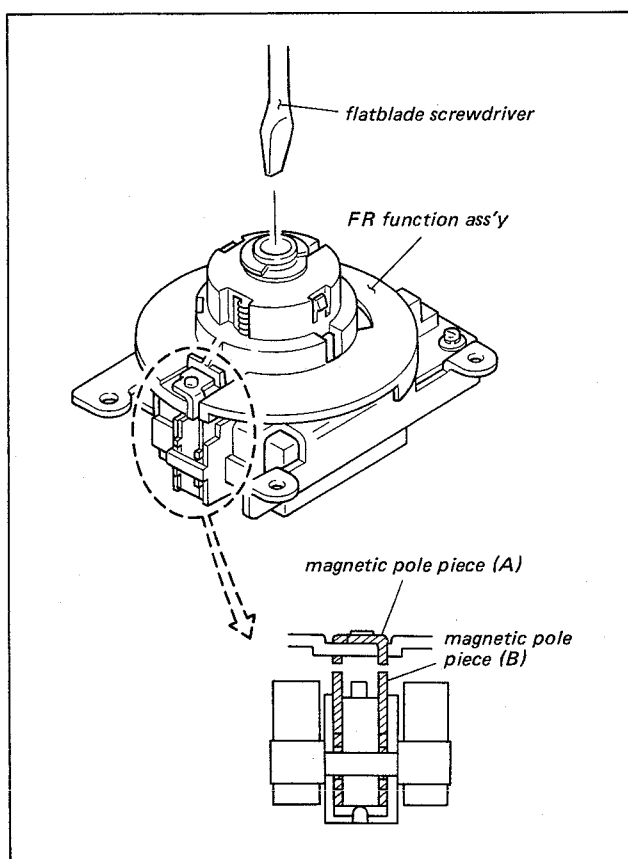
- Rotary encoder overall ass'y
 - Rotary encoder
 - FR function ass'y
- i) When the rotary encoder and/or FR function ass'y are replaced, FR function ass'y is adjusted as a reference to the magnet pole piece that are mounted on the EN bracket. (refer to sec. 2-5-3)
 - ii) If you want to replace the magnet pole piece and/or EN bracket, replace the rotary encoder overall ass'y.
 - iii) If you want to replace the SW-55 board and/or photointerrupter, replace it as a single part. After replacement, perform the sec. 2-5-4 SW-55 Board Mounting Position Adjustment.



2-5-3. FR Function Ass'y Mounting Position Adjustment

- This adjustment is performed as a reference to the magnet pole piece that are mounted on the EN bracket.
- This adjustment requires a regulated 6.5 Vdc power supply.
 - * When the suitable VTR (see page 1-1.) is available, connect the remote connecting cable between the RM-440 and the VTR.
 - * When the suitable VTR is not available, connect the regulated 6.5 Vdc as follows;
 - 1pin of 33P REMOTE connector: 6.5 Vdc
 - 14pin of 33P REMOTE connector: GND

1. Install the FR function ass'y to the shaft of the rotary encoder and the pole piece (A) of the FR function ass'y magnetize to the pole piece (B) that are mounted on the EN bracket as shown in the figure.

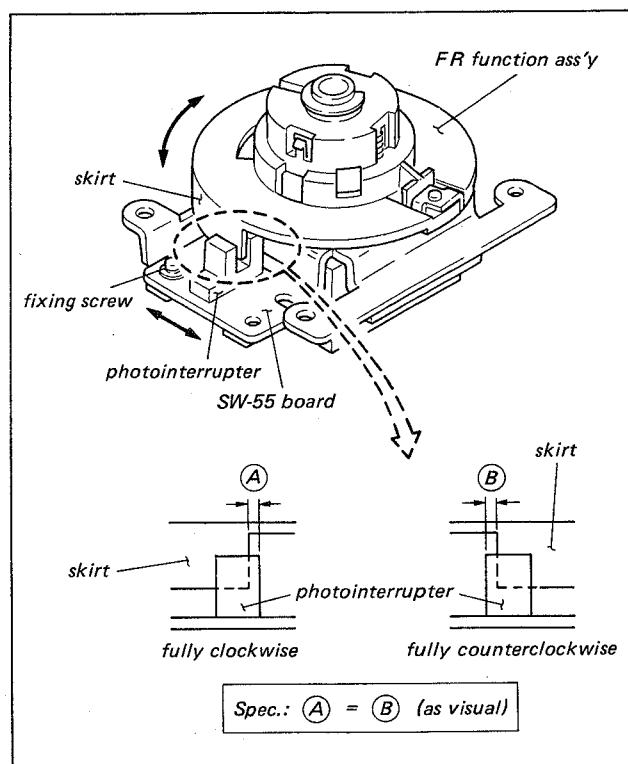


2. Connect the connector to the CN9 (PLAYER side) or CN8 (RECORDER side) of the MP-9 board.
3. Connect the oscilloscope to TP3, E2 (PLAYER) or TP2, E1 (RECORDER).
4. Install the flatblade screwdriver into the hole of the FR function ass'y.
5. Turn the flatblade screwdriver in the clockwise and counterclockwise directions. And stop turning at the point where the output level at TP3 or TP2 is turns L → H or H → L.
6. Lift the FR function ass'y a little amount. And install the 0.1mm thick shim between the pole piece (A) and (B). (The relationship between the pole piece (A) and (B) is the same relationship in step 1).)

7. Tighten the setscrew that are securing the FR function ass'y. (Tightening torque: 8 kg·cm - 10 kg·cm)
8. Turn the FR function ass'y in the clockwise and counterclockwise directions. And check that the output level is turns L → H or H → L at the center click position. If not, perform the steps 5) - 8) again.

2-5-4. SW-55 Board Mounting Position Adjustment

1. Turn the FR function ass'y in the fully clockwise and counterclockwise directions (not click). Check that the relationship between the skirt of the FR function ass'y and the photointerrupter meets the required specification.
2. If not, adjust the position of the SW-55 board in the arrow direction.



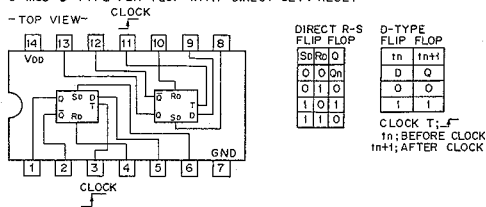
SECTION 3

PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

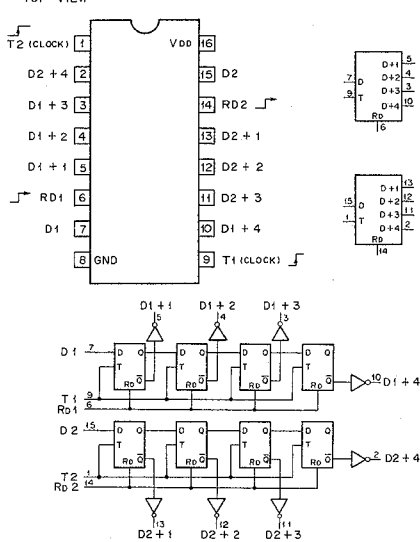
SEMICONDUCTOR ELECTRODES

TYPE	INTERCHANGEABILITY			PAGE
CD4013BE	TC4013BP	μ PD4042C	HD14042BP	3-2
CD4015BE	TC4015BP			3-2
CD4021BE	TC4021BP			3-2
CD4040BE	TC4040BP			3-2
CD4042BE	TC4042BP			3-2
CD4050BE	TC4050BP			3-2
LM358JG		μ PC358C		3-3
M54529P				3-3
MB8747				3-3
MC14584BCP				3-3
SN74LS37N				3-3
SN74LS138N				3-3
SN74LS139N				3-4
SN74LS390N				3-4
TC5012BP				3-4
TC40H368P				3-4

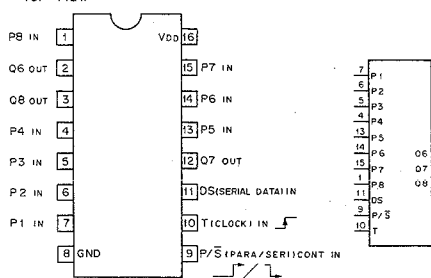
CD4013AE/BE (RCA)
TC4013BP (TOSHIBA)
C-MOS D-TYPE FLIP FLOP WITH DIRECT SET/RESET



CD4015AE/BE (RCA)
TC4015BP (TOSHIBA)
C-MOS DUAL 4-STAGE STATIC SHIFT REGISTER WITH DIRECT RESET

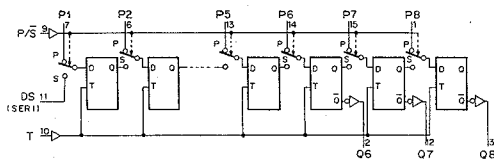


CD4021AE/BE (RCA)
TC4021BP (TOSHIBA)
C-MOS ASYNCHRONOUS PARALLEL/SYNCHRONOUS SERIAL INPUT 8-BIT STATIC SHIFT REGISTER

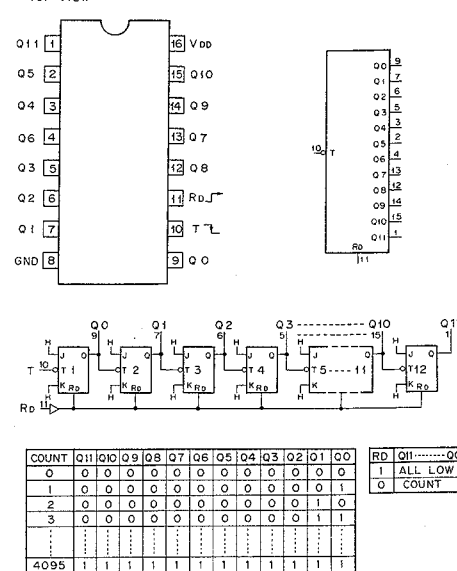


IN				T _n + 1															
INPUT				INTERNAL OUTPUTS								OUTPUTS							
P/S CONT	T	P	DS	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q1n	Q2n	Q3n	Q4n	Q5n	Q6n	Q7n	Q8n
1	X	P1 ~ P8	X	P1	P2	P3	P4	P5	P6	P7	P8	Q1n	Q2n	Q3n	Q4n	Q5n	Q6n	Q7n	Q8n
0	$\overline{X}$	X	1	1	Q1n	Q2n	Q3n	Q4n	Q5n	Q6n	Q7n	Q8n	Q1n	Q2n	Q3n	Q4n	Q5n	Q6n	Q7n
0	$\overline{X}$	X	0	0	Q1n	Q2n	Q3n	Q4n	Q5n	Q6n	Q7n	Q8n	Q1n	Q2n	Q3n	Q4n	Q5n	Q6n	Q7n
X	0	X	X	Q1n	Q2n	Q3n	Q4n	Q5n	Q6n	Q7n	Q8n	Q1n	Q2n	Q3n	Q4n	Q5n	Q6n	Q7n	Q8n

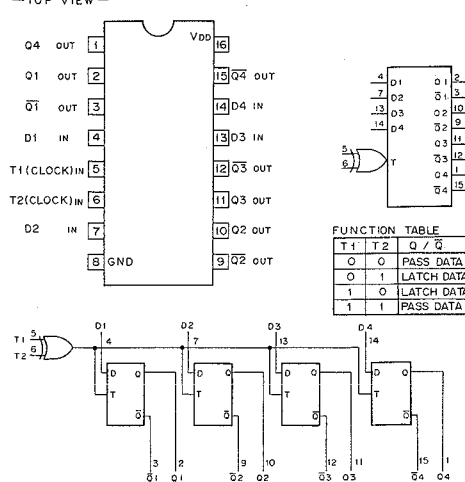
T_n: BEFORE CLOCK
 T_{n+1}: AFTER CLOCK



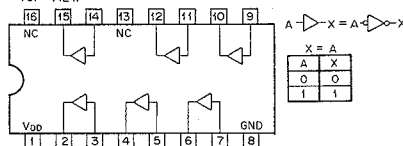
CD4040AE/BE (RCA)
TC4040BP (TOSHIBA)
C-MOS 12-STAGE RIPPLE CARRY BINARY COUNTER/DRIVER



CD4042AE/BE (RCA)
HD14042BP (HITACHI)
TC4042BP (TOSHIBA)
 μ PD4042C (NEC)
C-MOS D-TYPE LATCH

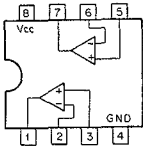


CD4050AE/BE (RCA)
TC4050BP (TOSHIBA)
C-MOS NON-INVERTING TYPE BUFFER/CONVERTER



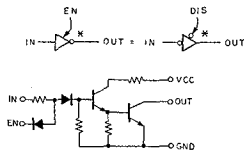
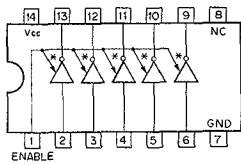
LM358JG (TI)
μPC358C (NEC)
DUAL OPERATIONAL AMPLIFIERS

—TOP VIEW—



M54529P (MITSUBISHI)
TRANSISTOR ARRAY

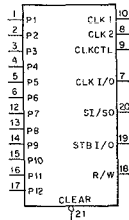
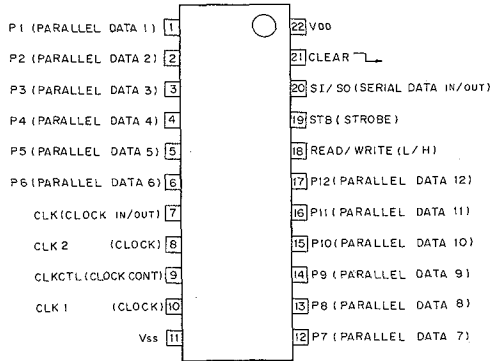
—TOP VIEW—



IN	EN	OUT
0	1	1
1	1	0
X	0	OPEN

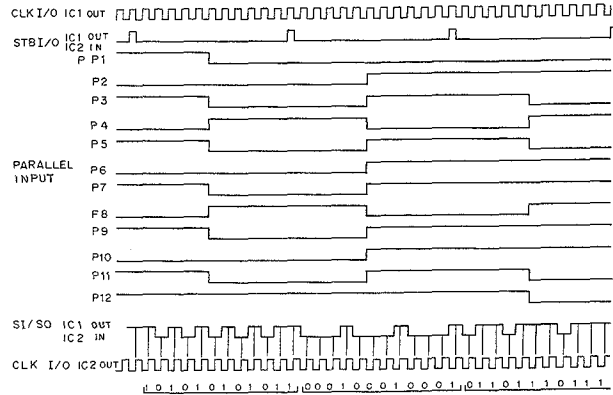
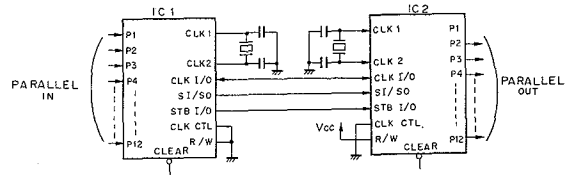
MB 8747 (FUJITSU)
C-MOS SERIAL—PARALLEL CONVERTER WITH OSCILLATOR

—TOP VIEW—



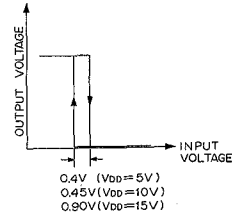
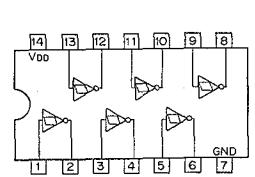
CLK CTL	CLK I/O
0	OUT
1	IN

R/W	SI/SO	P1~P12	STB I/O
0	OUT	IN	OUT
1	IN	OUT	IN



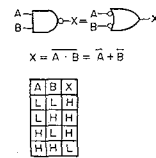
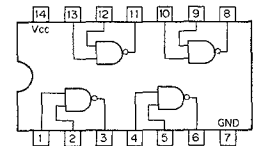
MC14584BCP (MOTOROLA)
C-MOS SCHMITT TRIGGER INVERTER

—TOP VIEW—



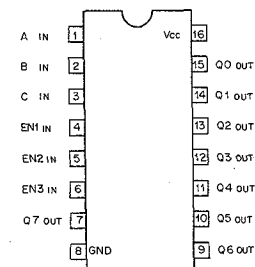
SN74LS37N (TI)
TTL 2-INPUT POSITIVE-NAND GATE BUFFER

—TOP VIEW—



SN74LS138N (TI)
TTL 3-TO-8-LINE DECODER/DEMULTIPLEXER

—TOP VIEW—



Pin diagram of the 74181 ALU. The chip has 16 pins. Pins 1, 2, and 3 are inputs A, B, and C respectively. Pins 4, 5, 6, and 7 are inputs D, E, F, and G respectively. Pins 8, 9, 10, 11, 12, 13, 14, and 15 are power and enable pins: 8 is Vcc, 9 is EN1, 10 is EN2, 11 is EN3, 12 is EN, and 13-15 are outputs Q0, Q1, and Q2. Pins 16 and 17 are ground.

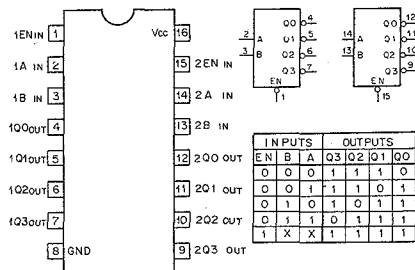
EN = EN1, EN2, EN3

INPUTS				OUT PUTS							
EN	C	B	A	Q7	Q6	Q5	Q4	Q3	Q2	Q1	Q0
0	X	X	X	1	1	1	1	1	1	1	1
1	0	0	0	1	1	1	1	1	1	1	0
1	0	0	1	1	1	1	1	1	0	1	1
1	0	1	0	1	1	1	1	0	1	1	1
1	0	1	1	1	1	1	0	1	1	1	1
1	1	0	0	1	1	1	0	1	1	1	1
1	1	0	1	1	1	0	1	1	1	1	1
1	1	1	0	1	1	1	1	1	1	1	1
1	1	1	1	0	1	1	1	1	1	1	1

IC, TR, LED

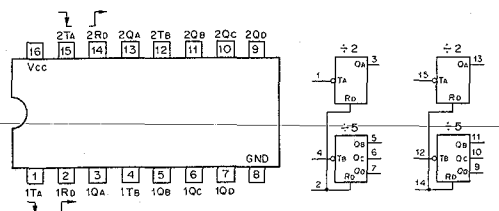
SN74LS139N (TI)
TTL 2-TO-4-LINE DECODER/DEMULTIPLEXER

—TOP VIEW—



SN74LS390N (TI)
TTL DIVIDE-BY-2 AND DIVIDE-BY-5 COUNTER

—TOP VIEW—



COUNT SEQUENCE

COUNT	QA
0	0
1	1

÷ 5 SECTION

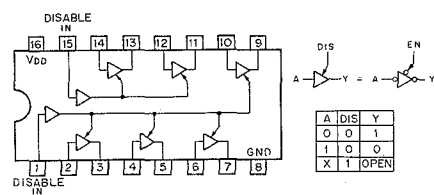
COUNT	Qd	Qc	Qb
0	0	0	0
1	0	0	1
2	0	1	0
3	0	1	1
4	1	0	0

RESET/COUNT FUNCTION

Rb	Qd	Qc	Qb	Qa
0	0	0	0	0
1	0	0	0	0
0	COUNT			

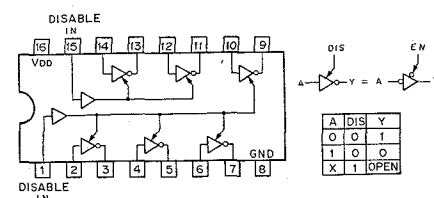
TC5012BP (TOSHIBA)
C-MOS NON-INVERTING 3-STATE BUFFER

—TOP VIEW—

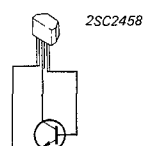
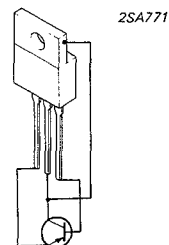


TC40H368P (TOSHIBA)
C-MOS INVERTING 3-STATE BUFFER

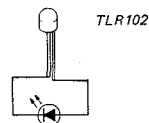
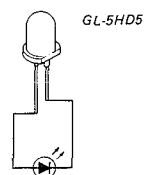
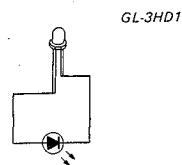
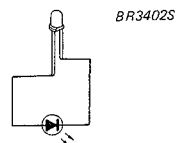
—TOP VIEW—



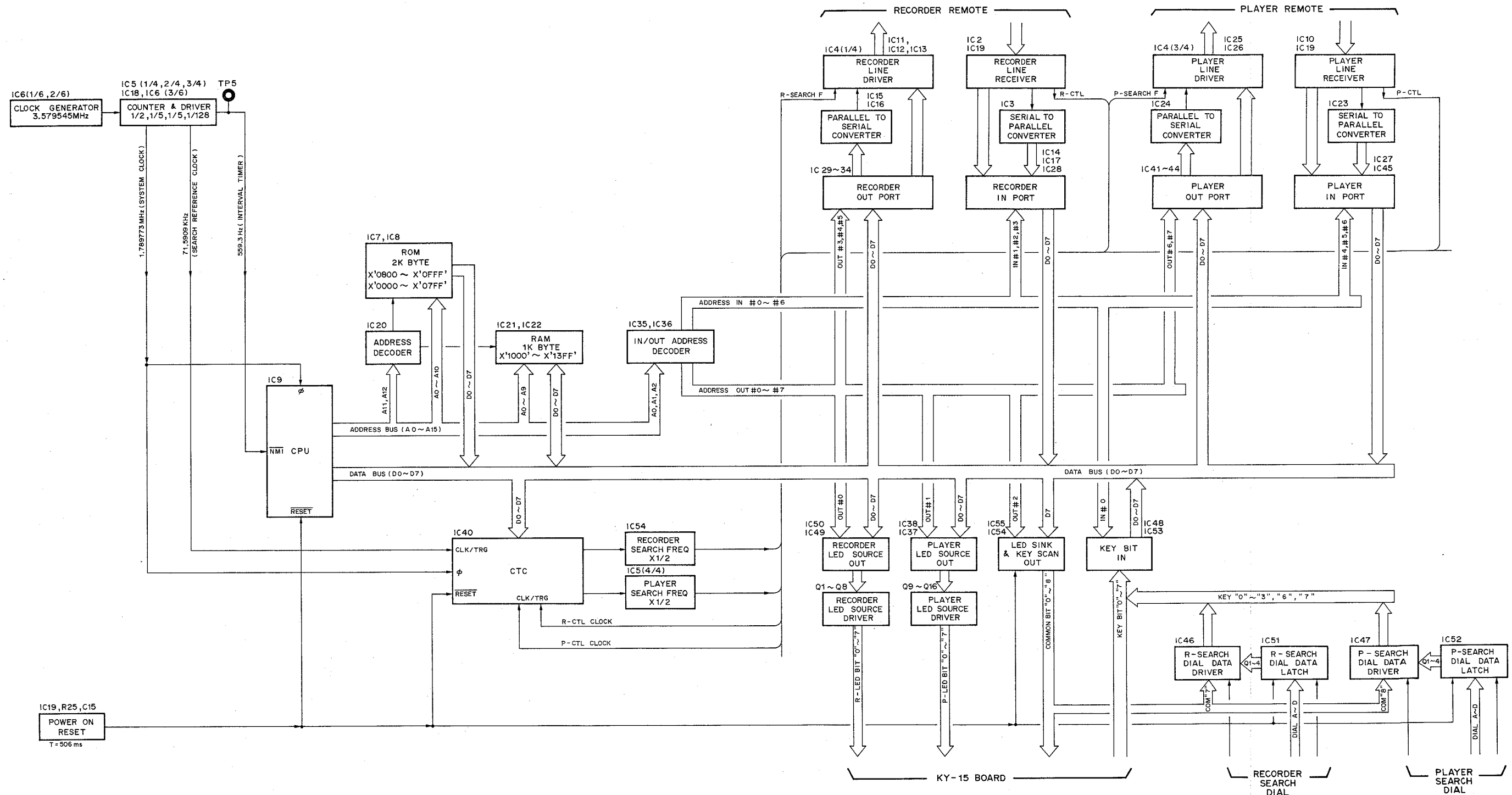
« TRANSISTOR »

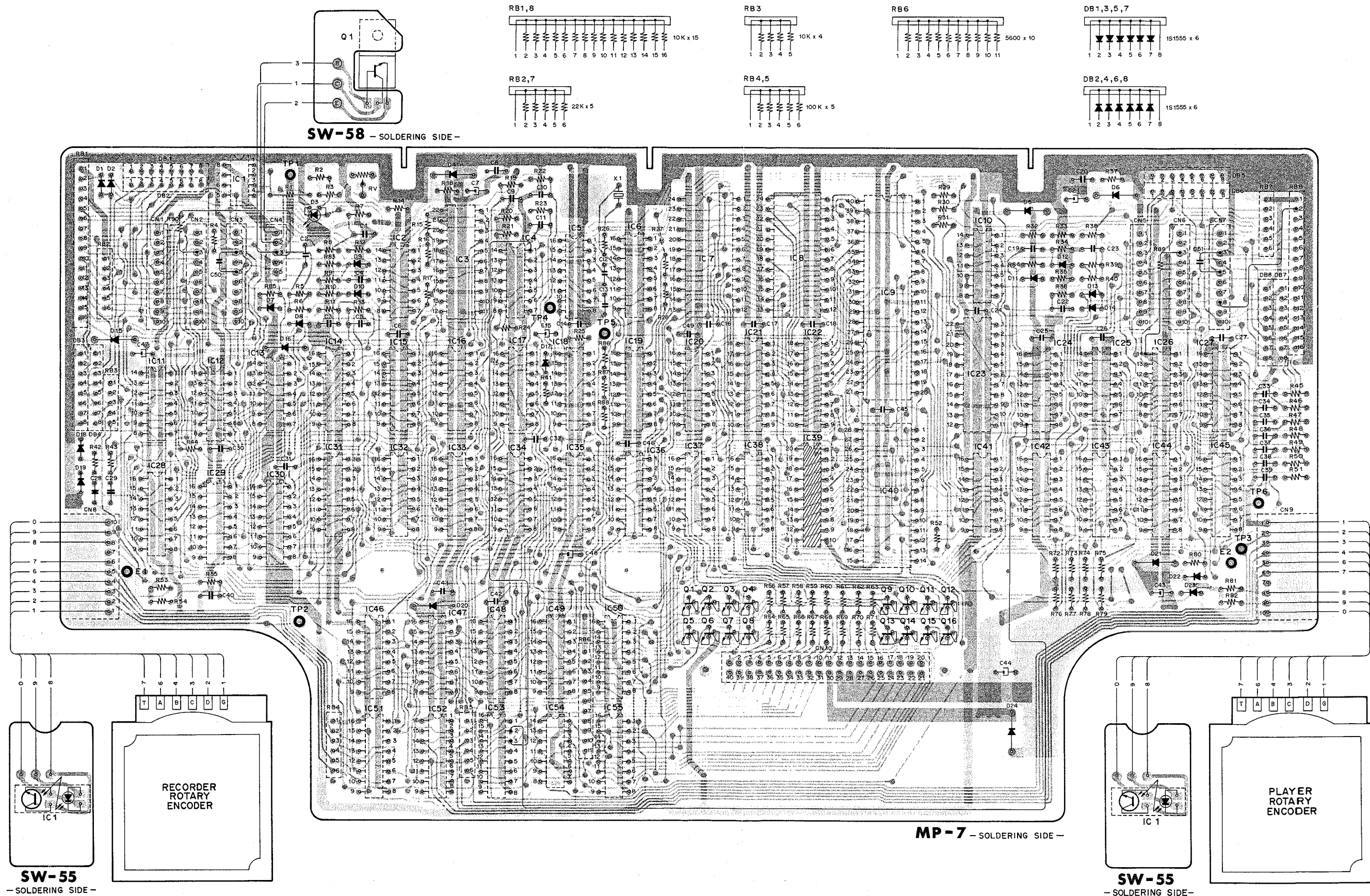


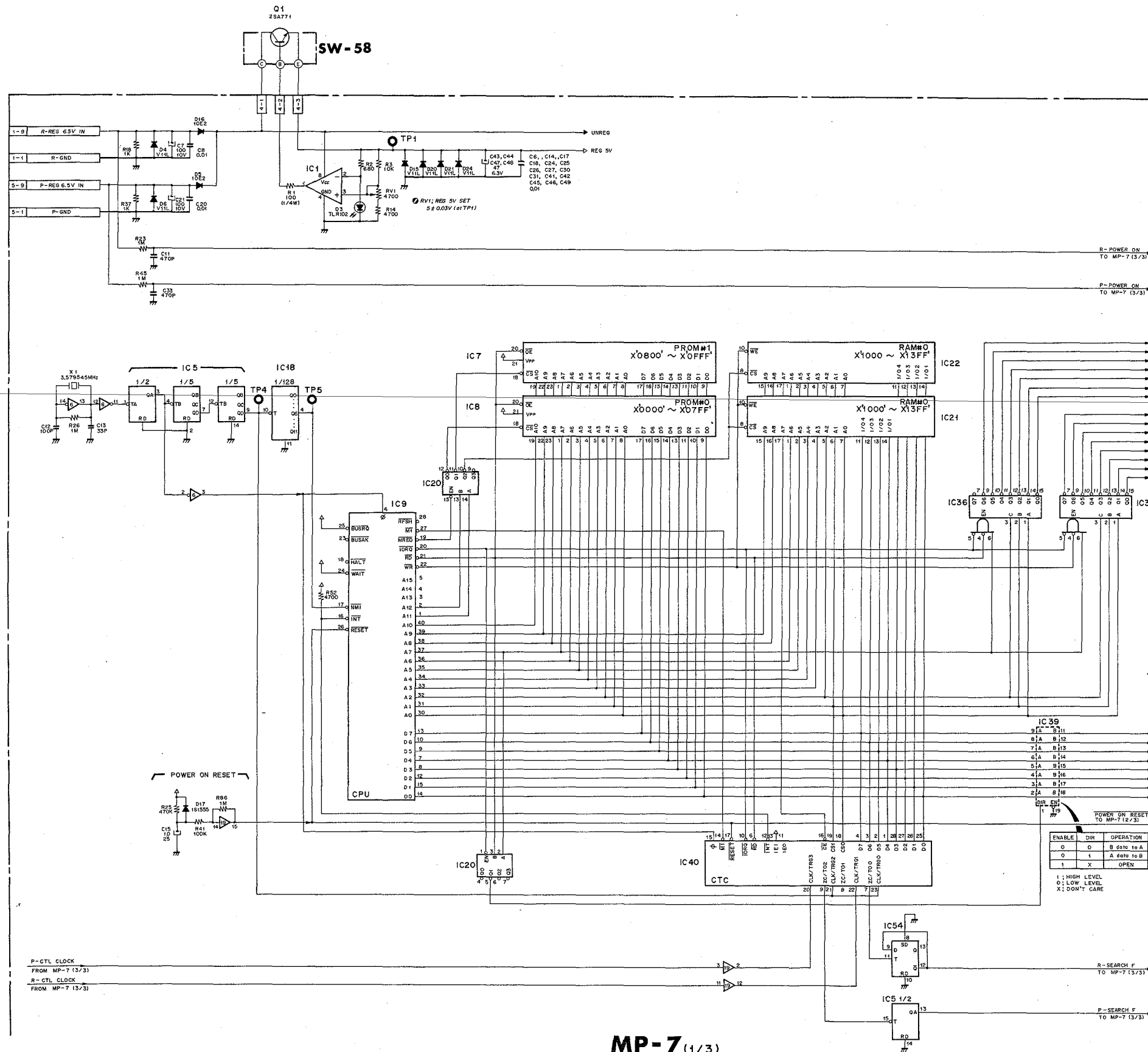
« LED »



OVERALL BLOCK DIAGRAM

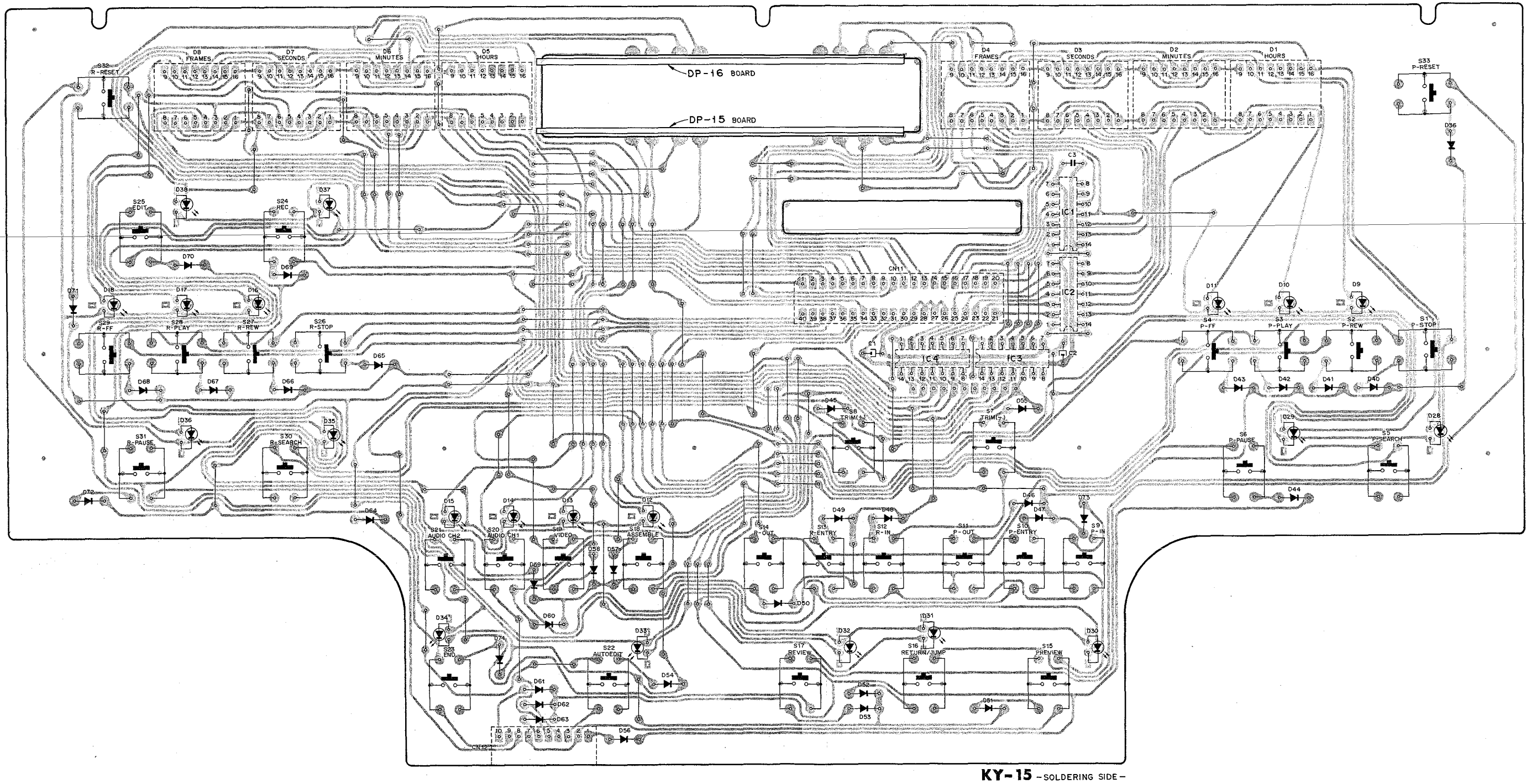
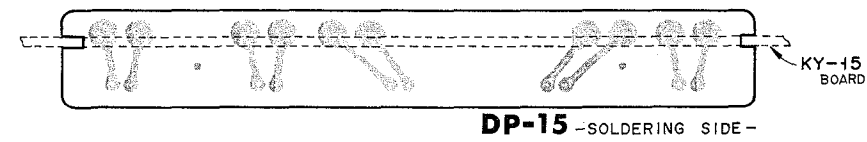
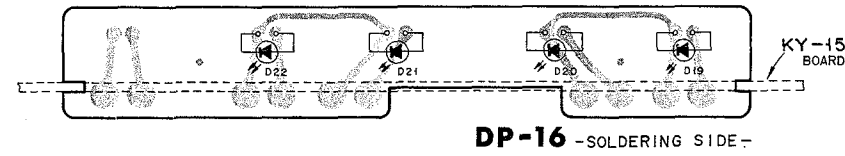


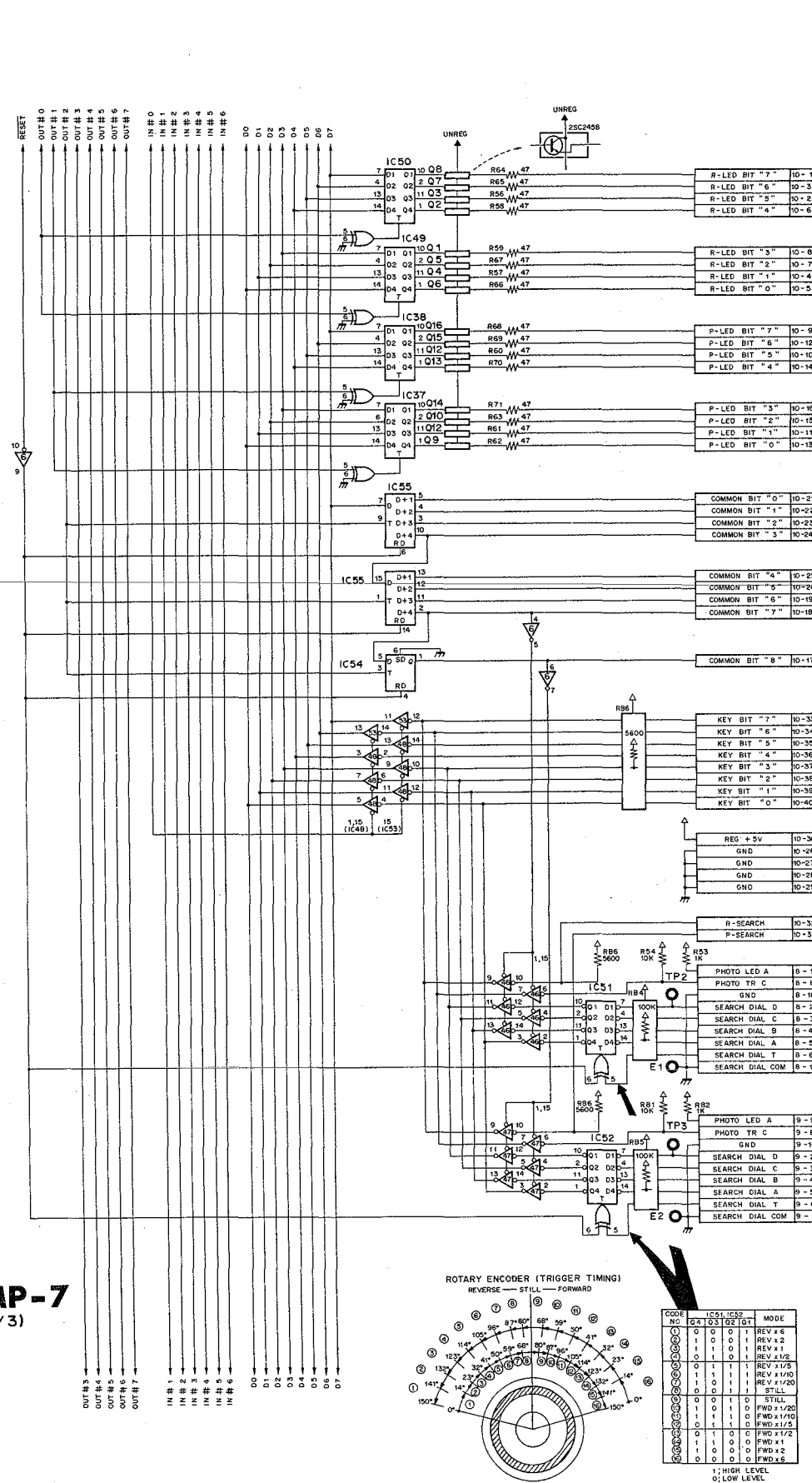


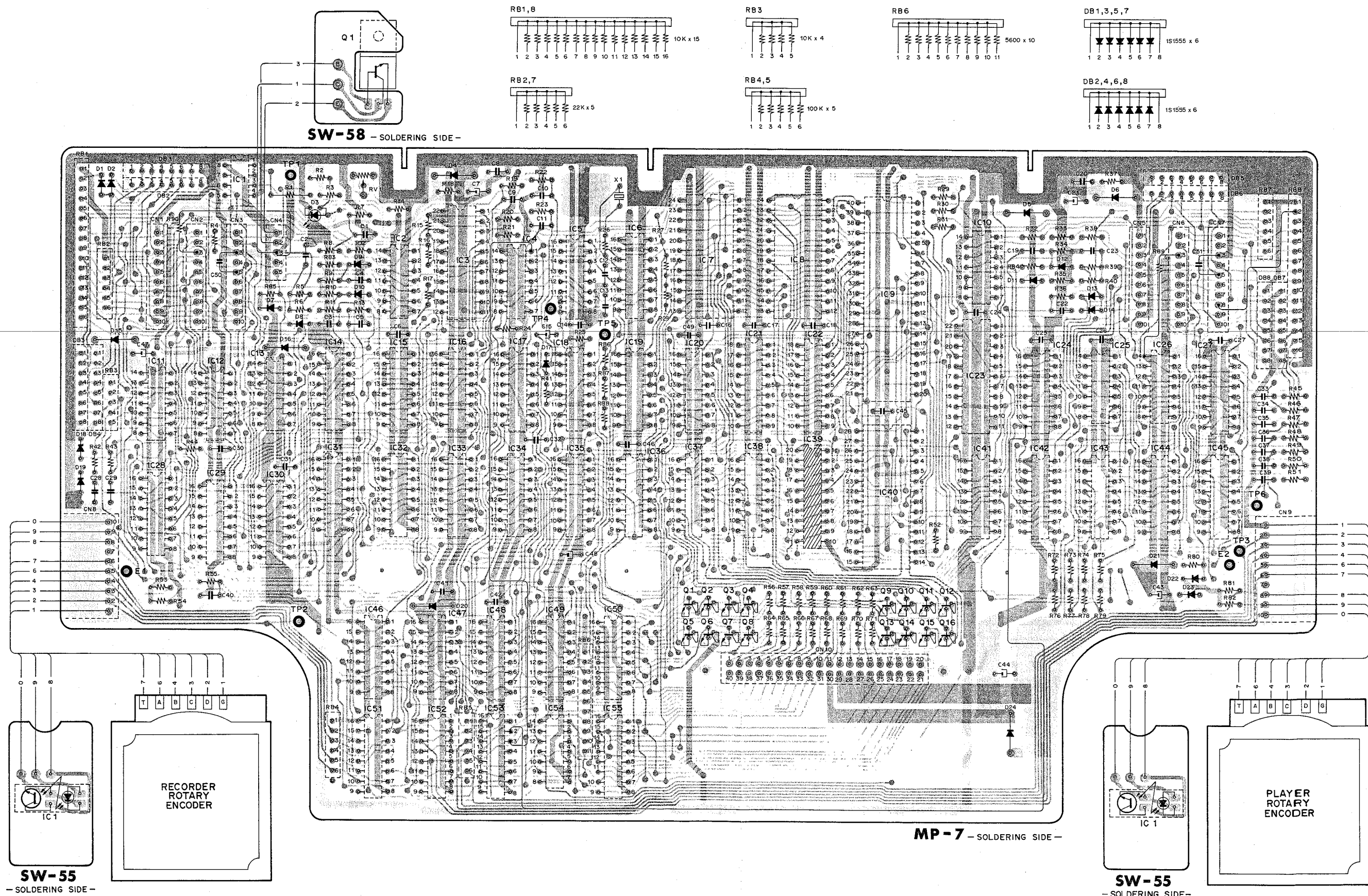


REF NO	TYPE	PIN NO.
IC 1	LM358P, μ PC358C	8 4
IC 2	TC4584BP, MC14584BCP	14 7
IC 3	M88747	22 11
IC 4	SN74LS37N	14 7
IC 5	SN74LS390N	16 8
IC 6	TC40H368P	16 8
IC 7	MB8516-RMR0, MB8516-RMR1	24 12
IC 8	MB8516-RML0, MB8516-RML1	24 12
IC 9	LH0080	11 29
IC 10	TC4584BP, MC14584BCP	14 7
IC 11	M54529P	14 7
IC 12	M54529P	14 7
IC 13	M54529P	14 7
IC 14	TC40H368P	16 8
IC 15	TC4021BP, CD4021BE	16 8
IC 16	TC4021BP, CD4021BE	16 8
IC 17	TC40H368P	16 8
IC 18	TC4040BP, CD4040BE	16 8
IC 19	TC4050BP, CD4050BE	16 8
IC 20	SN74LS139N	16 8
IC 21	M88114NL	18 9
IC 22	M88114NL	18 9
IC 23	M88747	22 11
IC 24	TC4021BP, CD4021BE	16 8
IC 25	M54529P	14 7
IC 26	M54529P	14 7
IC 27	TC40H368P	16 8
IC 28	TC40H368P	16 8
IC 29	TC4042BP, CD4042BE	16 8
IC 30	TC4042BP, CD4042BE	16 8
IC 31	TC4042BP, CD4042BE	16 8
IC 32	TC4042BP, CD4042BE	16 8
IC 33	TC4042BP, CD4042BE	16 8
IC 34	TC4042BP, CD4042BE	16 8
IC 35	SN74LS138N	16 8
IC 36	SN74LS138N	16 8
IC 37	TC4042BP, CD4042BE	16 8
IC 38	TC4042BP, CD4042BE	16 8
IC 39	(SN74LS245N)	20 10
IC 40	LH0082	24 5
IC 41	TC4042BP, CD4042BE	16 8
IC 42	TC4042BP, CD4042BE	16 8
IC 43	TC4042BP, CD4042BE	16 8
IC 44	TC4042BP, CD4042BE	16 8
IC 45	TC40H368P	16 8
IC 46	TC5012BP	16 8
IC 47	TC5012BP	16 8
IC 48	TC40H368P	16 8
IC 49	TC4042BP, CD4042BE	16 8
IC 50	TC4042BP, CD4042BE	16 8
IC 51	TC4042BP, CD4042BE	16 8
IC 52	TC4042BP, CD4042BE	16 8
IC 53	TC40H368P	16 8
IC 54	TC4013BP, CD4013BE	14 7
IC 55	TC4015BP, CD4015BE	16 8

KY-15 (with DP-15, DP-16)



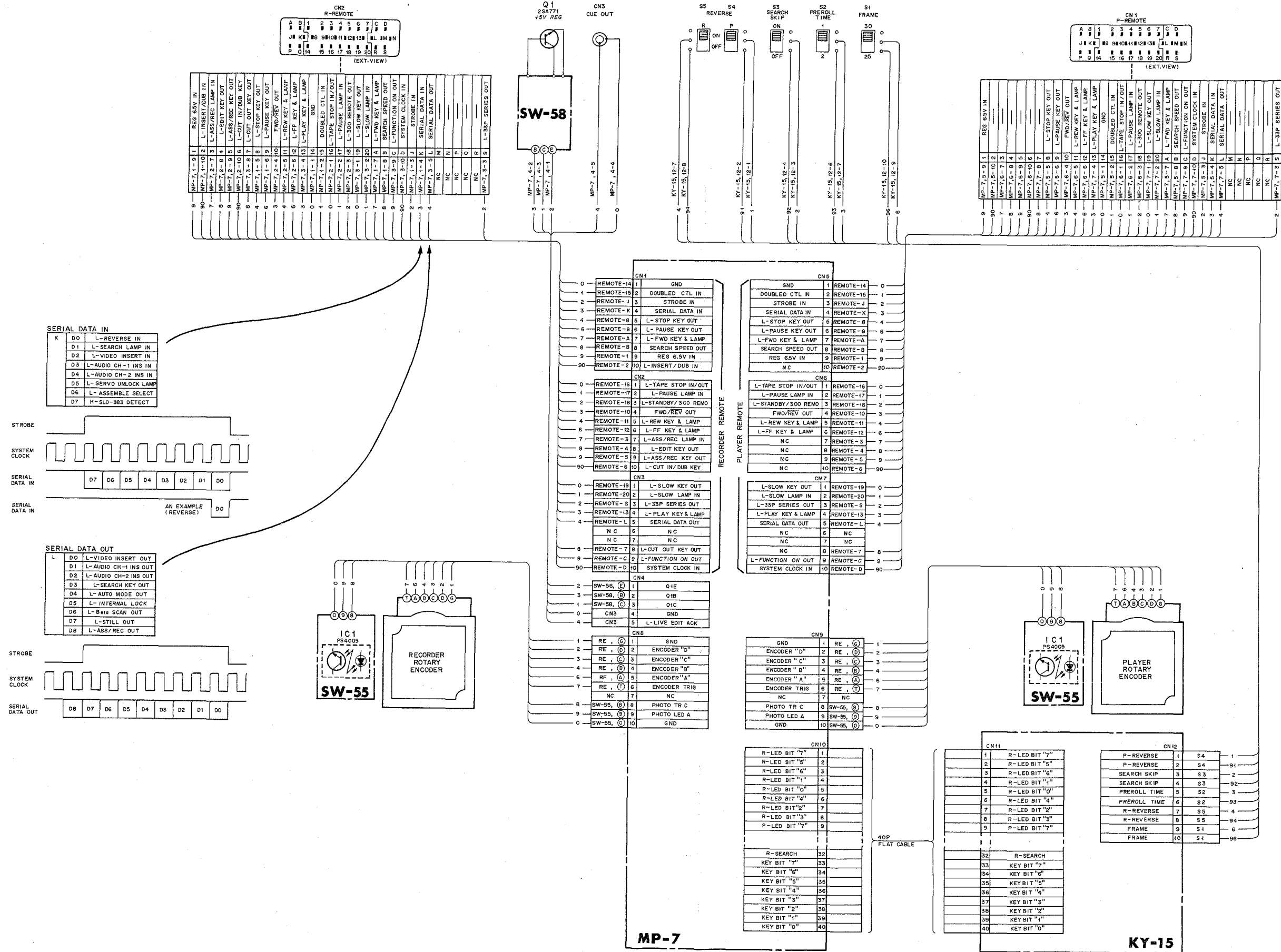






FRAME

FRAME FRAME



SECTION 4 SPARE PARTS

4-1. PARTS INFORMATION

1. Replacement Parts supplied from Sony Parts Center will sometimes have different shape and outside view from the parts which actually in use. This is due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts."
 - This manual's exploded views and electrical spare parts lists are indicating the parts numbers of "the standardized genuine parts at present".
 - Regarding engineering parts changes in our engineering department, refer Sony service bulletins and service manual supplements.
2. Printed Components in Bold-Face type on the exploded views and electrical spare parts list are normally stocked for replacement purposes. The remaining parts are not normally required for routine service work. Orders for parts not shown in Bold-Face type will be processed, but allow for additional delivery time.
3. Item with no part number and/or no description are not stocked because they are seldom required for routine service.
4. Screws
 - All the screws used in this machine are the TOTSU type unless otherwise noted. The screws are interchangeable with the Phillips type (⊕) and slotted type (⊖) screws.
 - Please order as the following part number when ordering the TOTSU type screws.

						
Size	PS	PSW	B (BZnN)	B (Cr-N)	PTT	PTTWH
2.6 x 4	7-621-972-05	_____	7-621-912-10	7-621-912-18	_____	_____
2.6 x 6	7-621-972-25	_____	7-621-912-30	7-621-912-38	_____	_____
2.6 x 8	7-621-972-35	_____	7-621-912-40	7-621-912-48	_____	_____
2.6 x 10	7-621-972-45	_____	7-621-912-50	7-621-912-58	_____	_____
2.6 x 12	7-621-972-55	_____	7-621-912-60	7-621-912-68	_____	_____
3 x 6	7-686-447-01	7-686-527-01	7-686-624-09	7-686-624-04	7-687-411-31	7-687-510-31
3 x 8	7-686-448-01	7-686-528-01	7-686-625-09	7-686-625-04	7-687-412-31	7-687-511-31
3 x 10	7-686-449-01	7-686-529-01	7-686-626-09	7-686-626-04	7-687-413-31	7-687-512-31
3 x 12	7-686-450-01	7-686-530-01	7-686-627-09	7-686-627-04	_____	_____
3 x 16	7-686-452-01	7-686-532-01	7-686-629-09	7-686-629-04	_____	_____
3 x 25	7-686-454-01	7-686-534-01	7-686-631-09	7-686-631-04	_____	_____
4 x 8	7-686-468-01	_____	_____	7-686-635-04	_____	_____
4 x 12	7-686-470-01	_____	_____	7-686-637-04	_____	_____
4 x 14	7-686-471-01	_____	_____	7-686-638-04	_____	_____
4 x 16	7-686-472-01	_____	_____	7-686-639-04	_____	_____
4 x 20	7-686-473-01	_____	_____	7-686-640-04	_____	_____

2017年12月
2018年1月

2018年2月

2018年3月

2018年4月

2018年5月

2018年6月

2018年7月

2018年8月

2018年9月

2018年10月

2018年11月

2018年12月

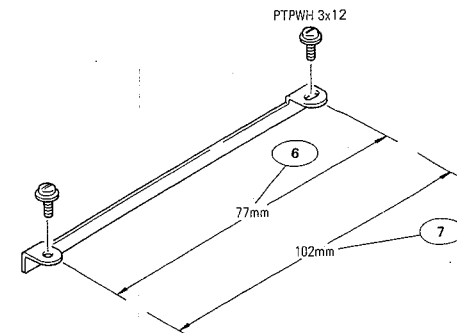
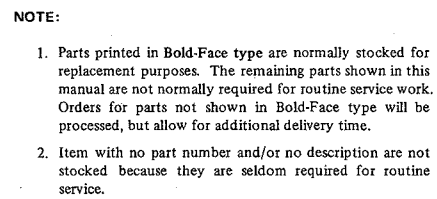
2019年1月

2019年2月

2019年3月

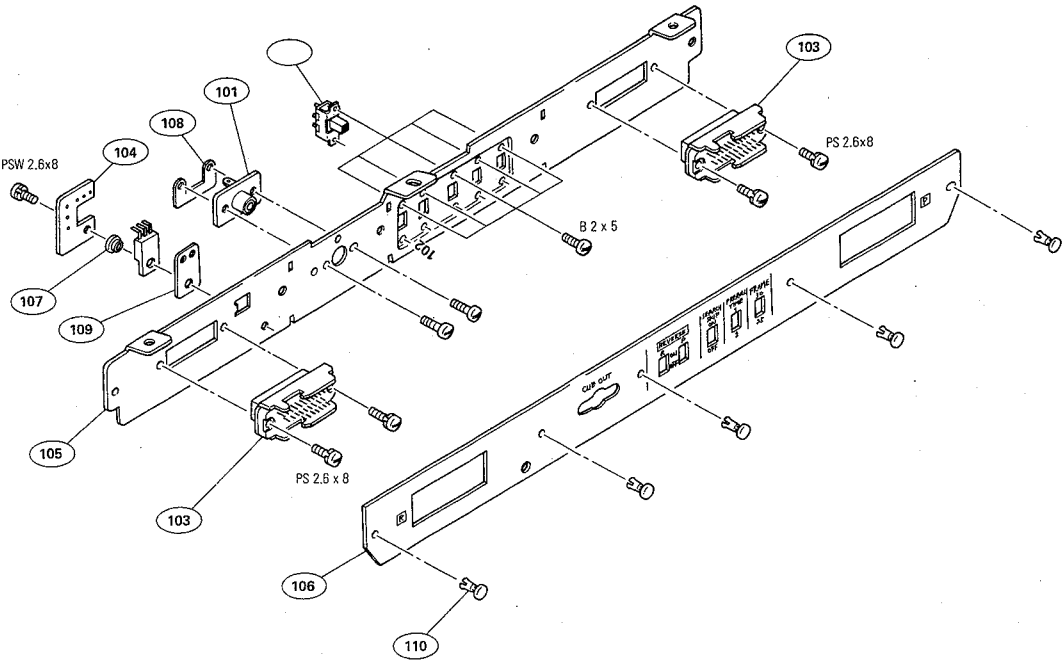
2019年4月

Chassis and key button



No.	Parts No.	Description
11	2-284-724-01	KEY TOP (C) (DARK GREY)
12	2-284-724-11	KEY TOP (C) (BLUE)
13	2-284-724-21	KEY TOP (C) (RED)
14	2-284-725-00	HOLDER, KEY
15	2-284-727-01	KEY TOP (E) (DARK GREY)
16	2-284-727-11	KEY TOP (E) (RED)
17	2-284-731-00	PLATE, BOTTOM
18	2-284-743-00	CUSHION (A), KEY
19	2-284-744-00	CUSHION (B), KEY
20	2-284-745-00	REINFORCEMENT

Connector Panel



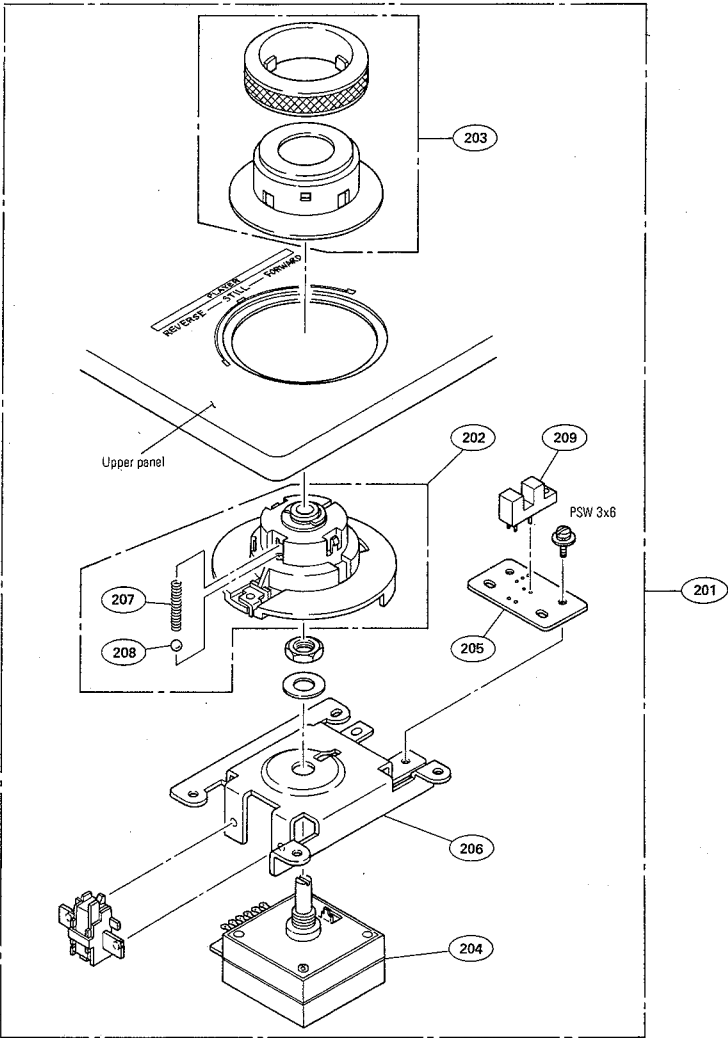
NOTE:

1. Parts printed in **Bold-Face type** are normally stocked for replacement purposes. The remaining parts shown in this manual are not normally required for routine service work. Orders for parts not shown in **Bold-Face type** will be processed, but allow for additional delivery time.

2. Item with no part number and/or no description are not stocked because they are seldom required for routine service.

No.	Parts No.	Description
101	1-507-176-XX	1P PIN JACK
102	1-552-822-00	SWITCH, SLIDE
103	1-560-458-00	RECEPTACLE (MALE) 33P
104	1-604-045-00	PRINTED CIRCUIT BOARD, "SW-58"
105	2-284-728-00	PLATE, CONNECTOR
106	2-284-729-00	PLATE, ORNAMENTAL
107	2-832-007-00	BUSHING (K), INSULATING
108	3-661-147-00	NUT, PLATE
109	3-701-754-00	PLATE, INSULATING
110	4-812-134-00	RIVET NYLON, 3.5

Search Dial



NOTE:

1. Parts printed in **Bold-Face type** are normally stocked for replacement purposes. The remaining parts shown in this manual are not normally required for routine service work. Orders for parts not shown in **Bold-Face type** will be processed, but allow for additional delivery time.

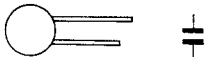
2. Item with no part number and/or no description are not stocked because they are seldom required for routine service.

No.	Parts No.	Description
201	A-6271-041-A	DIAL ASS'Y, SEARCH
202		FUNCTION FR SUB ASS'Y
203	X-2284-702-00	KNOB ASS'Y, EN
204	1-226-996-00	ENCODER, ROTARY
205	1-604-046-00	PRINTED CIRCUIT BOARD, "SW-55"
206	2-284-707-00	BRACKET, EN
207	3-632-254-00	SPRING
208	7-671-115-01	BALL, STEEL
209	8-719-140-05	DIODE PS4005

4.3. ELECTRICAL PARTS LIST

Parts that are not listed in the "reference numbers order list" are shown in following table.
Reference numbers are omitted.

CERAMIC CAPACITOR 100pF through 820pF (B)
50WV



Parts NO. 1-102-□□□-00

Value	Parts No. -□□□-
100pF	106
120	107
150	108
180	109
220	110
270	111
330	112
390	113
470	114
560	115
680	116
820	117

CERAMIC CAPACITOR 0.001μF through 0.1μF
50WV



Parts NO. 1-161-□□□-00

Value	Parts No. -□□□-	Substitute	Value	Parts No. -□□□-	Substitute
0.001 μF	039	(1-102-074-00)	0.01 μF	051	(1-101-118-00)
0.0012	040		0.012	052	
0.0015	041		0.015	053	
0.0018	042		0.018	054	
0.0022	043	(1-102-100-00)	0.022	055	(1-101-005-00)
0.0027	044		0.027	056	
0.0033	045		0.033	057	
0.0039	046	(1-102-124-00)	0.039	058	
0.0047	047		0.047	059	(1-101-006-00)
0.0056	048		0.056	060	
0.0068	049		0.068	061	
0.0082	050		0.082	062	
			0.1	063	

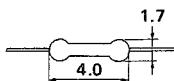
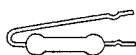
NOTES:

1. The shaded and -marked components are critical to safety.
Replace only with same components as specified.

2. Parts printed in **Bold-Face type** are normally stocked for replacement purposes. The remaining parts shown in this manual are not normally required for routine service work. Orders for parts not shown in Bold-Face type will be processed, but allow for additional delivery time.

CARBON RESISTOR (1/8W)

±5%, 1/8W, non-special type
2.2Ω through 1MΩ



Parts No. 1-246-□□□-00

Value	Parts No. -□□□-	Value	Parts No. -□□□-	Value	Parts No. -□□□-	Value	Parts No. -□□□-
1Ω	—	33Ω	765	1kΩ	783	33kΩ	801
1.1	—	36	826	1.1	844	36	862
1.2	—	39	766	1.2	784	39	802
1.3	—	43	827	1.3	845	43	863
1.5	—	47	767	1.5	785	47	803
1.6	—	51	828	1.6	846	51	864
1.8	—	56	768	1.8	786	56	804
2	—	62	829	2	847	62	865
2.2	751	68	769	2.2	787	68	805
2.4	812	75	830	2.4	848	75	866
2.7	752	82	770	2.7	788	82	806
3	813	91	831	3.0	849	91	867
3.3	753	100Ω	771	3.3	789	100kΩ	807
3.6	814	110	832	3.6	850	110	868
3.9	754	120	772	3.9	790	120	808
4.3	815	130	833	4.3	851	130	869
4.7	755	150	773	4.7	791	150	809
5.1	816	160	834	5.1	852	160	870
5.6	756	180	774	5.6	792	180	810
6.2	817	200	835	6.2	853	200	871
6.8	757	220	775	6.8	793	220	811
7.5	818	240	836	7.5	854		
8.2	758	270	776	8.2	794		
9.1	819	300	837	9.1	855		
10Ω	759	330	777	10kΩ	795		
11	820	360	838	11	856		
12	760	390	778	12	796		
13	821	430	839	13	857		
15	761	470	779	15	797		
16	822	510	840	16	858		
18	762	560	780	18	798		
20	823	620	841	20	859		
22	763	680	781	22	799		
24	824	750	842	24	860		
27	764	820	782	27	800		
30	825	910	843	30	861		

Parts No. 1-247-□□□-00

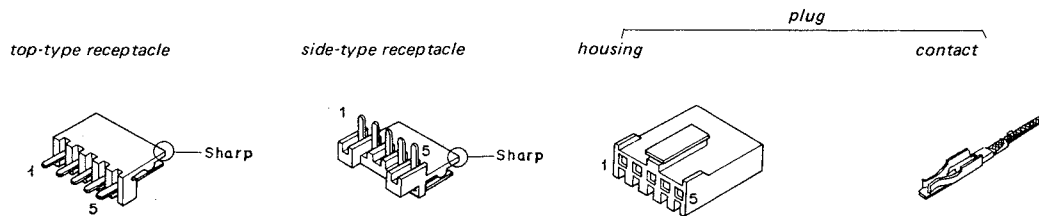
Value	Parts No. -□□□-
240kΩ	054
270	046
300	055
330	047
360	056
390	048
430	057
470	049
510	058
560	050
620	059
680	051
750	060
820	052
910	061
1MΩ	053

NOTES:

1. The shaded and -marked components are critical to safety.
Replace only with same components as specified.

2. Parts printed in **Bold-Face type** are normally stocked for replacement purposes. The remaining parts shown in this manual are not normally required for routine service work. Orders for parts not shown in Bold-Face type will be processed, but allow for additional delivery time.

CONNECTOR



2P	1-508-900-00
3P	1-508-901-00
4P	1-508-902-00
5P	1-508-903-00
6P	1-508-904-00
8P	1-508-905-00
10P	1-508-906-00
12P	1-508-949-00

2P	1-508-933-00
3P	1-508-934-00
4P	1-508-950-00
5P	1-508-935-00
6P	1-508-936-00
8P	1-508-937-00
10P	1-508-951-00
12P	1-508-997-00

2P	1-509-983-00
3P	1-509-984-00
4P	1-509-985-00
5P	1-509-986-00
6P	1-509-987-00
8P	1-509-988-00
10P	1-509-989-00
12P	1-561-056-00

1-509-982-00

ABBREVIATIONS

Ref. No.	Description
C□□	CAPACITOR
CN□□	CONNECTOR
D□□	DIODE
DB□□	DIODE BLOCK
IC□□	IC

Ref. No.	Description
Q□□	TRANSISTOR
R□□	RESISTOR
RB□□	RESISTOR BLOCK
RV□□	RESISTOR, VARIABLE
S□□	SWITCH
X□□	CRISTAL

NOTES

All capacitors are in micro farads unless otherwise specified.
 All inductors are in micro henries unless otherwise specified.
 All resistors are in ohms.

NOTES:

- The shaded and -marked components are critical to safety.
 Replace only with same components as specified.

- Parts printed in **Bold-Face type** are normally stocked for replacement purposes. The remaining parts shown in this manual are not normally required for routine service work. Orders for parts not shown in Bold-Face type will be processed, but allow for additional delivery time.

Ref. No.	Parts No.	Description	Ref. No.	Parts No.	Description
MP-7 BOARD			D21	8-719-333-10	UF1C
	A-6259-141-A	MOUNTED CIRCUIT BOARD, MP-7	D22	8-719-815-55	1S1555
			D23	8-719-815-55	1S1555
			D24	8-719-333-10	UF1C
C2	1-108-579-00	MYLAR 0.01 5% 50V	DB1	8-719-815-55	1S1555 (6 pcs.)
C7	1-123-307-00	ELECT 100 20% 10V	DB2	8-719-815-55	1S1555 (6 pcs.)
C12	1-107-085-00	MICA 100PF 5% 50V	DB3	8-719-815-55	1S1555 (6 pcs.)
C13	1-107-073-00	MICA 33PF 5% 50V	DB4	8-719-815-55	1S1555 (6 pcs.)
C15	1-127-453-00	ELECT 1 10% 25V	DB5	8-719-815-55	1S1555 (6 pcs.)
C16	1-108-563-00	MYLAR 0.0022 5% 50V	DB6	8-719-815-55	1S1555 (6 pcs.)
C21	1-123-307-00	ELECT 100 20% 10V	DB7	8-719-815-55	1S1555 (6 pcs.)
C23	1-108-579-00	MYLAR 0.01 5% 50V	DB8	8-719-815-55	1S1555 (6 pcs.)
C32	1-108-563-00	MYLAR 0.0022 5% 50V			
C43	1-123-647-00	ELECT 47 20% 6.3V			
C44	1-123-647-00	ELECT 47 20% 6.3V	IC1	8-759-135-80	μPC358C (NEC)
C47	1-123-647-00	ELECT 47 20% 6.3V	IC2	8-759-045-84	MC14584BCP (MOTOROLA)
C48	1-123-647-00	ELECT 47 20% 6.3V	IC3	8-759-987-47	MB8747 (FUJITSU)
			IC4	8-759-900-37	SN74LS37N (TI)
			IC5	8-759-903-90	SN74LS390N (TI)
CN10	1-560-491-00	HEADER (MALE) 40P	IC6	8-759-223-68	TC40H368P (TOSHIBA)
			IC7	8-759-753-51	MB8516RMRO (FUJITSU)
			IC8	8-759-753-50	MB8516RMLO (FUJITSU)
			IC9	8-759-906-80	LH0080 (SHARP)
D1	8-719-815-55	1S1555	IC10	8-759-045-84	MC14584BCP (MOTOROLA)
D2	8-719-815-55	1S1555	IC11	8-759-645-29	M54529P (MITSUBISHI)
D3	8-719-801-02	TLR102	IC12	8-759-645-29	M54529P (MITSUBISHI)
D4	8-719-333-10	UF1C	IC13	8-759-645-29	M54529P (MITSUBISHI)
D5	8-719-200-02	10E-2	IC14	8-759-223-68	TC40H368P (TOSHIBA)
D6	8-719-333-10	UF1C	IC15	8-759-240-21	TC4021BP (TOSHIBA)
D7	8-719-815-55	1S1555	IC16	8-759-240-21	TC4021BP (TOSHIBA)
D8	8-719-815-55	1S1555	IC17	8-759-223-68	TC40H368P (TOSHIBA)
D9	8-719-815-55	1S1555	IC18	8-759-240-40	TC4040BP (TOSHIBA)
D10	8-719-815-55	1S1555	IC19	8-759-240-50	TC4050BP (TOSHIBA)
D11	8-719-815-55	1S1555	IC20	8-759-901-39	SN74LS139N (TI)
D12	8-719-815-55	1S1555	IC21	8-759-991-14	MB8114NL (FUJITSU)
D13	8-719-815-55	1S1555	IC22	8-759-991-14	MB8114NL (FUJITSU)
D14	8-719-815-55	1S1555	IC23	8-759-987-47	MB8747 (FUJITSU)
D15	8-719-333-10	UF1C	IC24	8-759-240-21	TC4021BP (TOSHIBA)
D16	8-719-200-02	10E-2	IC25	8-759-645-29	M54529P (MITSUBISHI)
D17	8-719-815-55	1S1555	IC26	8-759-645-29	M54529P (MITSUBISHI)
D18	8-719-815-55	1S1555	IC27	8-759-223-68	TC40H368P (TOSHIBA)
D19	8-719-815-55	1S1555	IC28	8-759-223-68	TC40H368P (TOSHIBA)
D20	8-719-333-10	UF1C	IC29	8-759-240-42	TC4042BP (TOSHIBA)
			IC30	8-759-240-42	TC4042BP (TOSHIBA)

NOTES:

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Q1	8-729-245-83	2SC2458
Q2	8-729-245-83	2SC2458
Q3	8-729-245-83	2SC2458
Q4	8-729-245-83	2SC2458
Q5	8-729-245-83	2SC2458
Q6	8-729-245-83	2SC2458
Q7	8-729-245-83	2SC2458
Q8	8-729-245-83	2SC2458
Q9	8-729-245-83	2SC2458
Q10	8-729-245-83	2SC2458
Q11	8-729-245-83	2SC2458
Q12	8-729-245-83	2SC2458
Q13	8-729-245-83	2SC2458
Q14	8-729-245-83	2SC2458
Q15	8-729-245-83	2SC2458
Q16	8-729-245-83	2SC2458
R1	1-246-449-00	CARBON 100 5% 1/4W

KY-15 BOARD	
A-6259-142-A	MOUNTED CIRCUIT BOARD, KY-15 (WITH DP-15, DP-16)
1-555-604-00	WIRE ASS'Y, FLAT 40P
1-604-043-00	PRINTED CIRCUIT BOARD, DP-15
1-604-044-00	PRINTED CIRCUIT BOARD, DP-16

D1	8-719-912-22	SL-1222
D2	8-719-912-22	SL-1222
D3	8-719-912-22	SL-1222
D4	8-719-912-22	SL-1222
D5	8-719-912-22	SL-1222
D6	8-719-912-22	SL-1222
D7	8-719-912-22	SL-1222
D8	8-719-912-22	SL-1222
D9	8-719-904-55	GL-5HD5
D10	8-719-904-55	GL-5HD5
D11	8-719-904-55	GL-5HD5
D12	8-719-904-55	GL-5HD5
D13	8-719-904-55	GL-5HD5
D14	8-719-904-55	GL-5HD5
D15	8-719-904-55	GL-5HD5
D16	8-719-904-55	GL-5HD5
D17	8-719-904-55	GL-5HD5
D18	8-719-904-55	GL-5HD5
D19	8-719-914-02	BR3402S
D20	8-719-914-02	BR3402S

NOTES:

- 4-11

Ref. No.	Parts No.	Description
D21	8-719-914-02	BR3402S
D22	8-719-914-02	BR3402S
D23	8-719-914-02	BR3402S
D24	8-719-914-02	BR3402S
D25	8-719-914-02	BR3402S
D26	8-719-914-02	BR3402S
D28	8-719-904-31	GL-3HD1
D29	8-719-904-31	GL-3HD1
D30	8-719-904-31	GL-3HD1
D31	8-719-904-31	GL-3HD1
D32	8-719-904-31	GL-3HD1
D33	8-719-904-31	GL-3HD1
D34	8-719-904-31	GL-3HD1
D35	8-719-904-31	GL-3HD1
D36	8-719-904-31	GL-3HD1
D37	8-719-904-31	GL-3HD1
D38	8-719-904-31	GL-3HD1
D39	8-719-815-55	1S1555
D40	8-719-815-55	1S1555
D41	8-719-815-55	1S1555
D42	8-719-815-55	1S1555
D43	8-719-815-55	1S1555
D44	8-719-815-55	1S1555
D45	8-719-815-55	1S1555
D46	8-719-815-55	1S1555
D47	8-719-815-55	1S1555
D48	8-719-815-55	1S1555
D49	8-719-815-55	1S1555
D50	8-719-815-55	1S1555
D51	8-719-815-55	1S1555
D52	8-719-815-55	1S1555
D53	8-719-815-55	1S1555
D54	8-719-815-55	1S1555
D55	8-719-815-55	1S1555
D56	8-719-815-55	1S1555
D57	8-719-815-55	1S1555
D58	8-719-815-55	1S1555
D59	8-719-815-55	1S1555
D60	8-719-815-55	1S1555
D61	8-719-815-55	1S1555
D62	8-719-815-55	1S1555
D63	8-719-815-55	1S1555
D64	8-719-815-55	1S1555
D65	8-719-815-55	1S1555
D66	8-719-815-55	1S1555

Ref. No.	Parts No.	Description
D67	8-719-815-55	1S1555
D68	8-719-815-55	1S1555
D69	8-719-815-55	1S1555
D70	8-719-815-55	1S1555
D71	8-719-815-55	1S1555
D72	8-719-815-55	1S1555
D73	8-719-815-55	1S1555
D74	8-719-815-55	1S1555
IC1	8-759-645-29	M54529P (MITSUBISHI)
IC2	8-759-645-29	M54529P (MITSUBISHI)
IC3	8-759-645-29	M54529P (MITSUBISHI)
IC4	8-759-645-29	M54529P (MITSUBISHI)
S1	1-552-539-00	PUSH, KEY "P-STOP"
S2	1-552-539-00	PUSH, KEY "P-REW"
S3	1-552-539-00	PUSH, KEY "P-PLAY"
S4	1-552-539-00	PUSH, KEY "P-FF"
S5	1-552-539-00	PUSH, KEY "P-SEARCH"
S6	1-552-539-00	PUSH, KEY "P-PAUSE"
S7	1-552-539-00	PUSH, KEY "TRIM (-)"
S8	1-552-539-00	PUSH, KEY "TRIM (+)"
S9	1-552-539-00	PUSH, KEY "P-IN"
S10	1-552-539-00	PUSH, KEY "P-ENTRY"
S11	1-552-539-00	PUSH, KEY "P-OUT"
S12	1-552-539-00	PUSH, KEY "R-IN"
S13	1-552-539-00	PUSH, KEY "R-ENTRY"
S14	1-552-539-00	PUSH, KEY "R-OUT"
S15	1-552-539-00	PUSH, KEY "PREVIEW"
S16	1-552-539-00	PUSH, KEY "RETURN/JUMP"
S17	1-552-539-00	PUSH, KEY "REVIEW"
S18	1-552-539-00	PUSH, KEY "ASSEMBLE"
S19	1-552-539-00	PUSH, KEY "VIDEO"
S20	1-552-539-00	PUSH, KEY "AUDIO CH-1"
S21	1-552-539-00	PUSH, KEY "AUDIO CH-2"
S22	1-552-539-00	PUSH, KEY "AUTO EDIT"
S23	1-552-539-00	PUSH, KEY "END"
S24	1-552-539-00	PUSH, KEY "REC"
S25	1-552-539-00	PUSH, KEY "EDIT"
S26	1-552-539-00	PUSH, KEY "R-STOP"
S27	1-552-539-00	PUSH, KEY "R-REW"
S28	1-552-539-00	PUSH, KEY "R-PLAY"
S29	1-552-539-00	PUSH, KEY "R-FF"
S30	1-552-539-00	PUSH, KEY "R-SEARCH"

NOTES:

1. The shaded and  -marked components are critical to safety.
Replace only with same components as specified.

2. Parts printed in **Bold-Face type** are normally stocked for replacement purposes. The remaining parts shown in this manual are not normally required for routine service work. Orders for parts not shown in **Bold-Face type** will be processed, but allow for additional delivery time.

KY-15, SW-55, SW-58, FRAME

Ref. No.	Parts No.	Description
S31	1-552-539-00	PUSH, KEY "R-PAUSE"
S32	1-552-539-00	PUSH, KEY "R-RESET"
S33	1-552-539-00	PUSH, KEY "P-RESET"

SW-55 BOARD

	1-604-046-00	PRINTED CIRCUIT BOARD, SW-55
IC1	8-719-140-05	PS4005 (NEC)

Ref. No.	Parts No.	Description
FRAME		
	1-226-996-00	ENCODER, ROTARY

CN1	1-560-458-00	RECEPTACLE (M) 33P, "P-REMOTE"
	1-508-958-00	CONTACT (MALE)
CN2	1-560-458-00	RECEPTACLE (M) 33P, "R-REMOTE"
	1-508-958-00	CONTACT (MALE)
CN3	1-507-176-XX	1P PIN JACK "CUE OUT"

S1	1-552-822-00	SLIDE, "FRAME 30/25"
S2	1-552-822-00	SLIDE, "PREROLL TIME 1/2"
S3	1-552-822-00	SLIDE, "SEARCH SKIP ON/OFF"
S4	1-552-822-00	SLIDE, "P-REVERSE"
S5	1-552-822-00	SLIDE, "R-REVERSE"

SW-58 BOARD

	1-604-045-00	PRINTED CIRCUIT BOARD, SW-58
Q1	8-729-377-12	2SA771

NOTES:

1. The shaded and -marked components are critical to safety. Replace only with same components as specified.

2. Parts printed in **Bold-Face type** are normally stocked for replacement purposes. The remaining parts shown in this manual are not normally required for routine service work. Orders for parts not shown in Bold-Face type will be processed, but allow for additional delivery time.

4.4. PACKING MATERIAL AND ACCESSORY (SUPPLIED)

Ref. No.	Parts No.	Description
	2-284-719-00	CAP, KEY
	2-284-738-00	BOX, ACCESSORY
	2-284-739-00	INDIVIDUAL CARTON
	2-284-740-00	CUSHION, RIGHT
	2-284-741-00	CUSHION, LEFT
	3-701-630-00	BAG, POLY (FOR MANUAL)
	3-783-429-12	MANUAL, INSTRUCTION
Standard Product	CORD ASS'Y, 33P-20P (RCC-5E) (FOR AEP/UK)	
	1-508-685-00	PLUG, 20P (MALE)
	1-508-958-00	CONTACT
	1-560-132-00	HOUSING
	1-561-582-00	PLUG, 33P (FEMALE)
	1-561-066-00	CONTACT
	2-284-735-00	BUSHING, CORD (FOR 33P)
	2-284-736-00	BUSHING, CORD (FOR 20P)

NOTES:

1. The shaded and -marked components are critical to safety.
Replace only with same components as specified.

2. Parts printed in **Bold-Face type** are normally stocked for replacement purposes. The remaining parts shown in this manual are not normally required for routine service work. Orders for parts not shown in Bold-Face type will be processed, but allow for additional delivery time.

AUTOMATIC EDITING CONTROL UNIT

RM-440

SUPPLEMENT-1

SUBJECT; CHANGE INFORMATION OF MP-7 BOARD

Please file this SUPPLEMENT-1 to your own manual

SONY[®]
SERVICE MANUAL

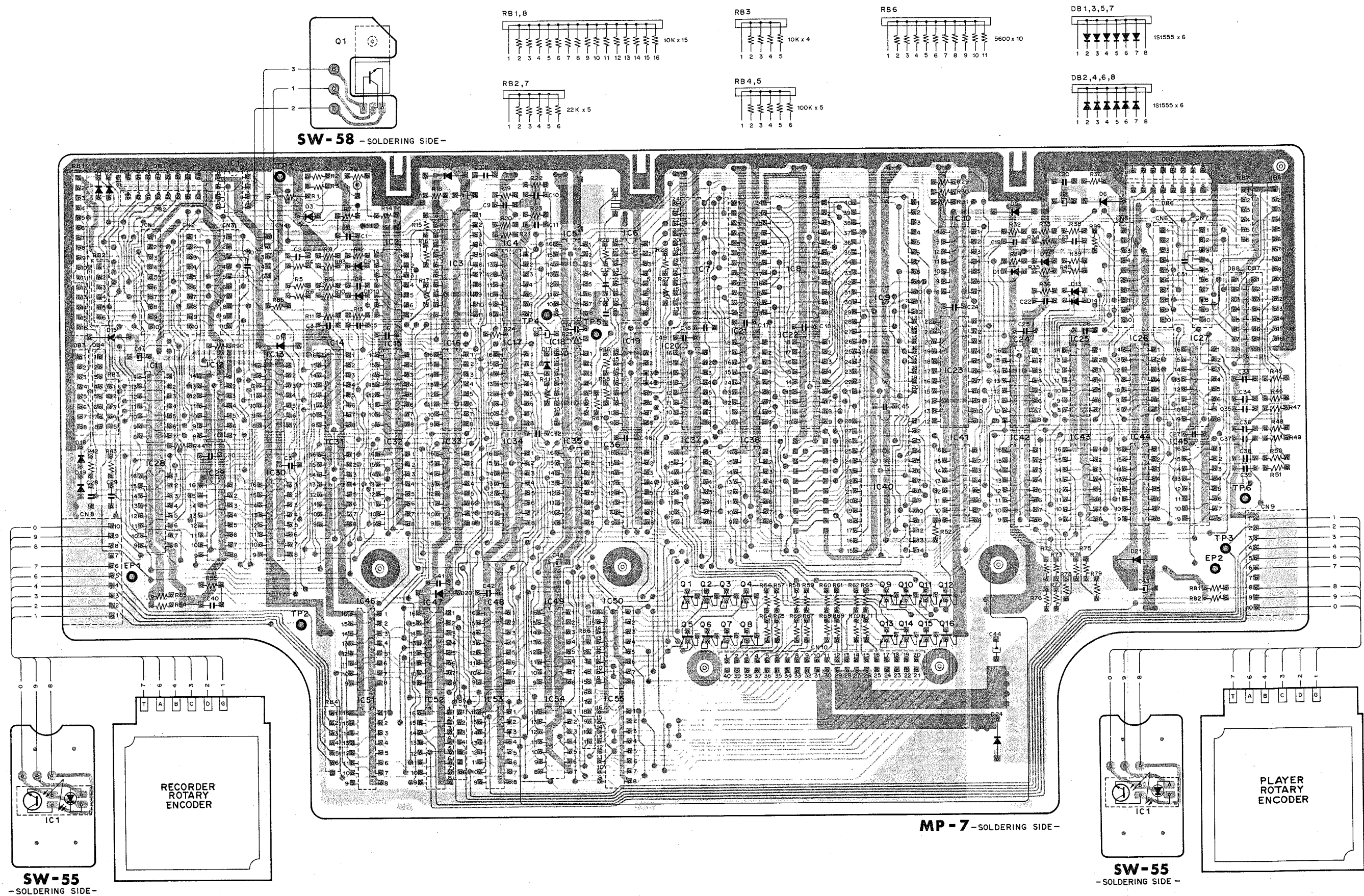
- The program contents of IC7 & 8 / MP-7 board have been changed, so two kinds of IC7 & 8 / MP-7 board should be prepared.

IC7 8-759-753-51 MB8516-RMR0 (FUJITSU) → 8-759-753-68 MB8516-RMR1 (FUJITSU)

IC8 8-759-753-50 MB8516-RML0 (FUJITSU) → 8-759-753-69 MB8516-RML1 (FUJITSU)

IC8 \ IC7	MB8516-RMR0	MB8516-RMR1
	MB8516-RML0	MB8516-RML1
MB8516-RML0	○	×
MB8516-RML1	×	○

Please notice that the machine will malfunction with the combination signed "X" in the upper chart when IC7 or 8 is replaced.
It should be replaced with the combination signed "○".

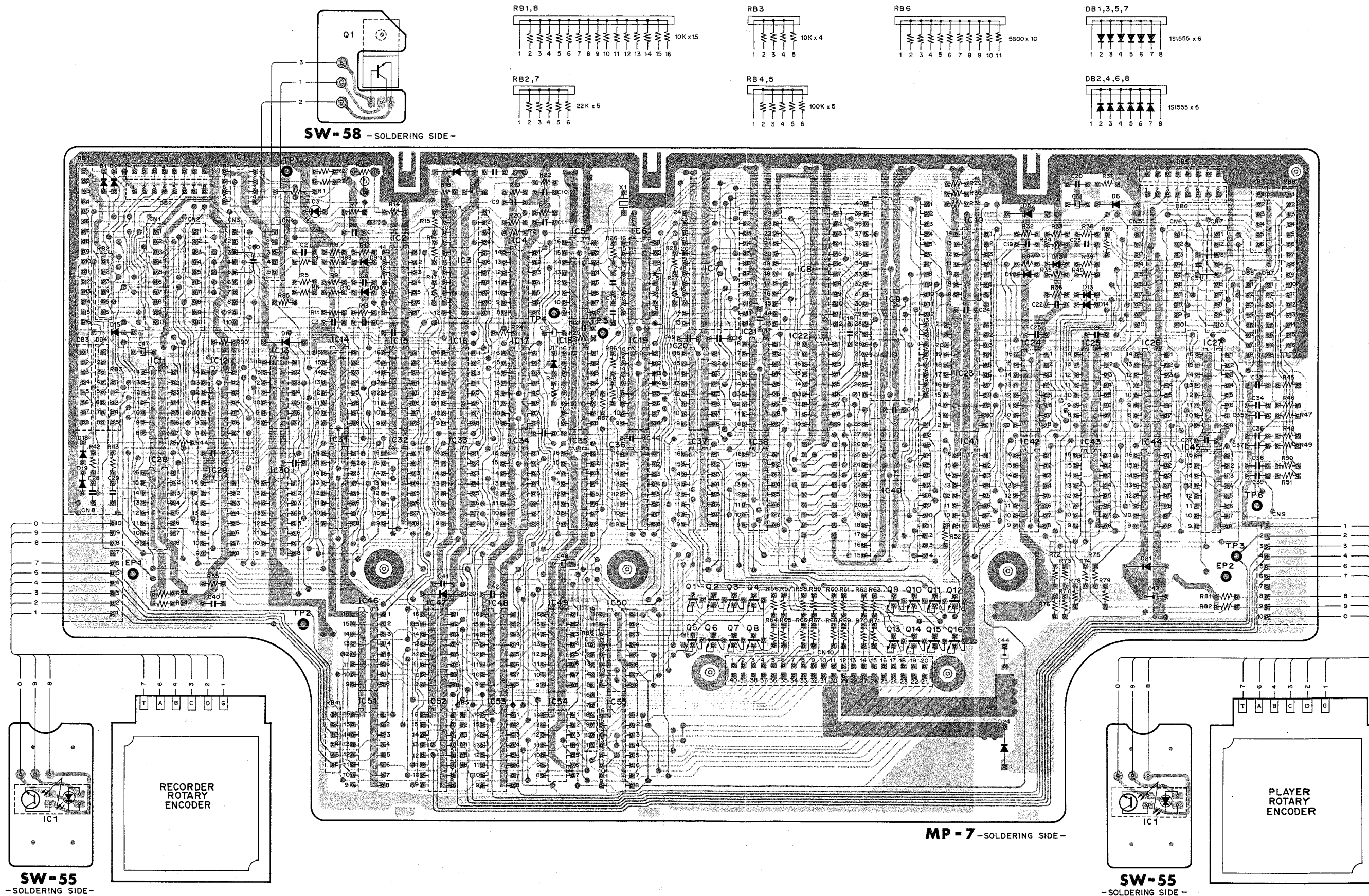


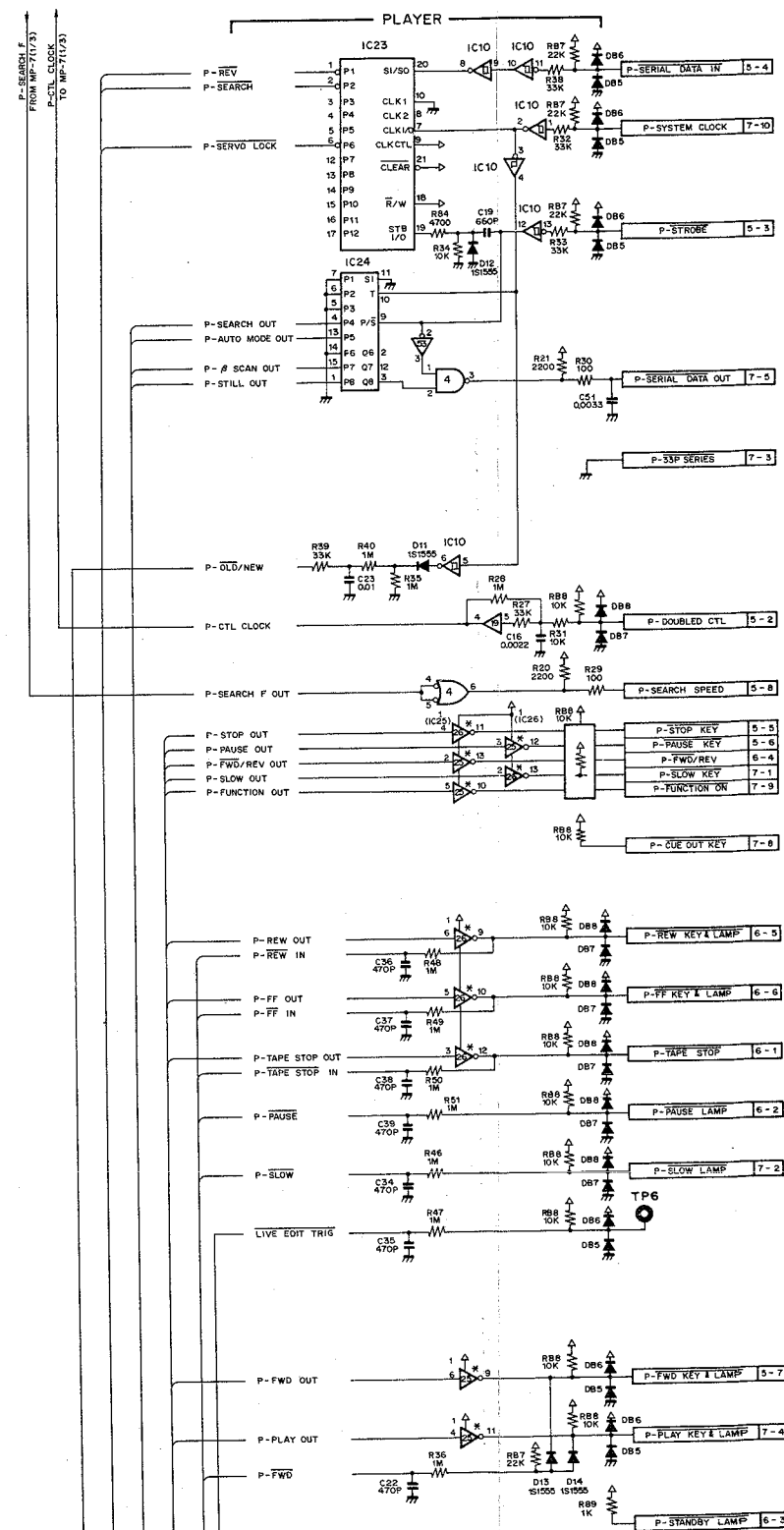
MP-7, SW-55, SW-58

MP-7, SW-55, SW-58

MP-7/SW-55/SW-58

FOR THE PRINTED CIRCUIT BOARD'S
PARTS No. 1-604-041-13





MP-7 (3/3)

AUTOMATIC EDITING CONTROL UNIT

RM-440

SUPPLEMENT-2

SUBJECT; CHANGE INFORMATION OF MP-7 BOARD

Please file this SUPPLEMENT-2 to your own manual

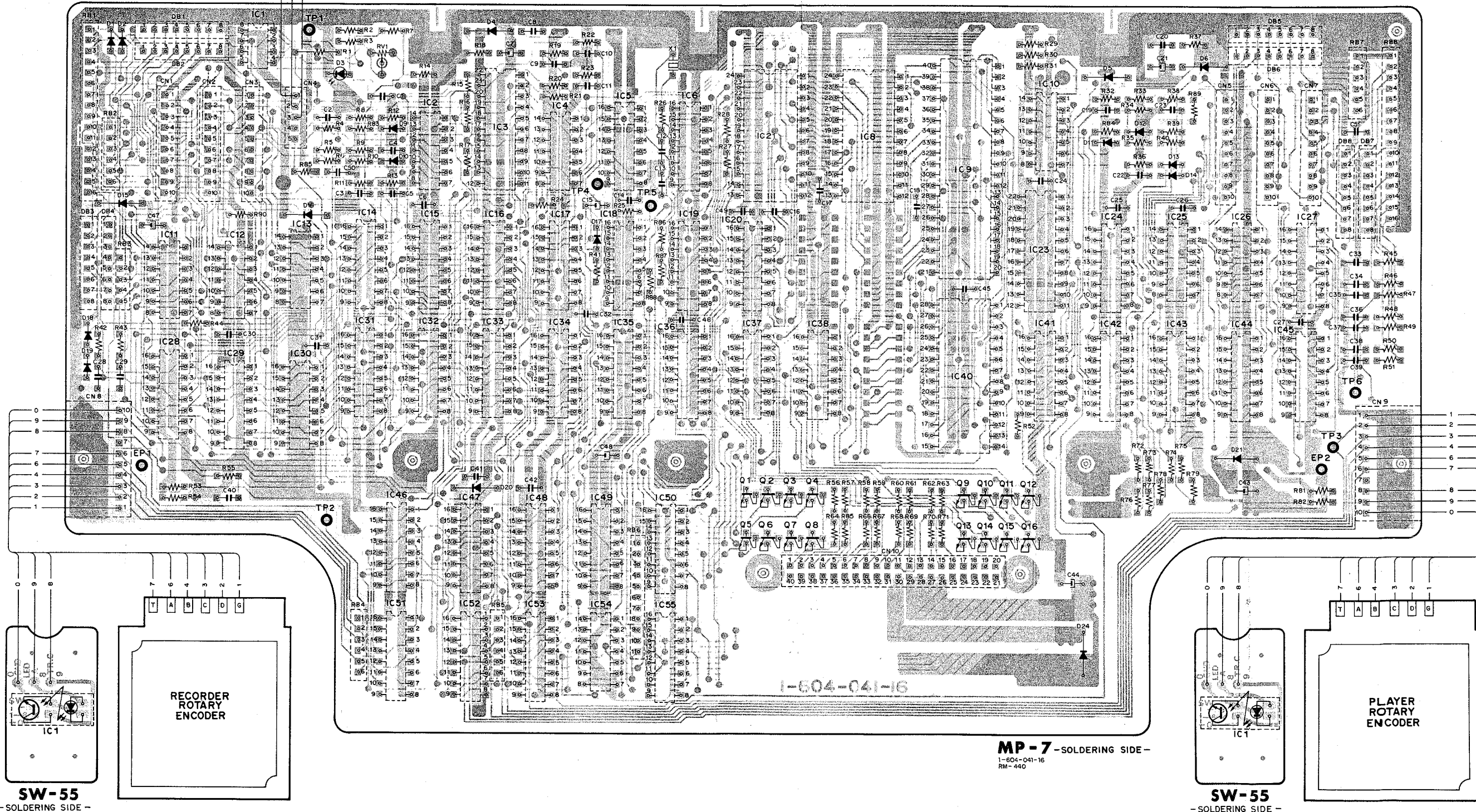
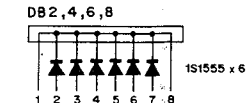
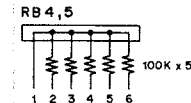
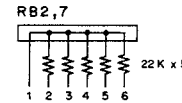
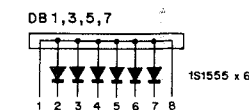
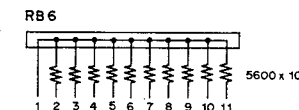
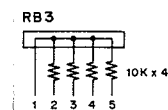
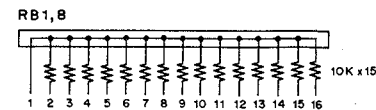
MP-7, SW-55, SW-58

MP-7, SW-55, SW-58

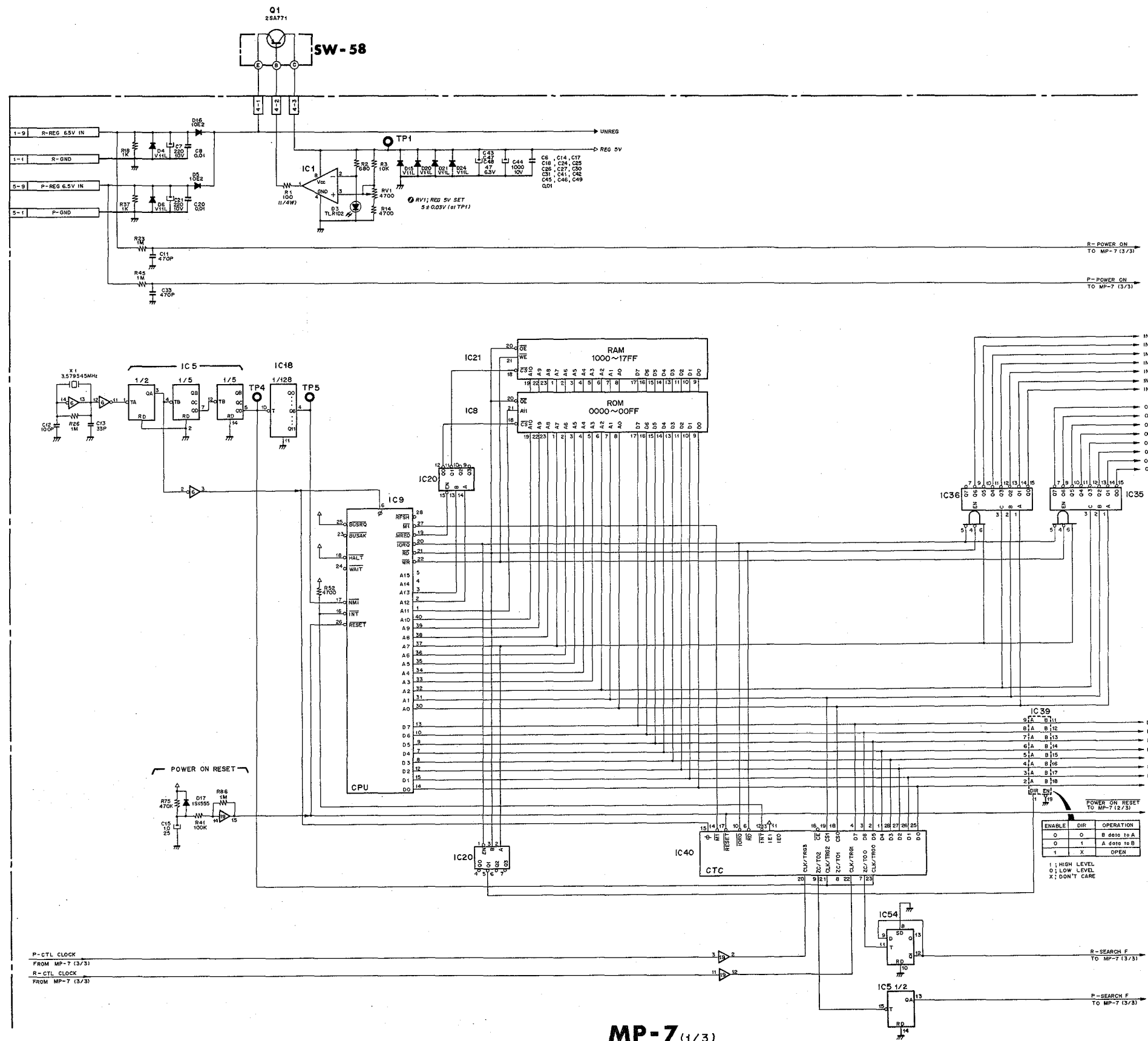
MP-7/SW-55/SW-58

FOR THE PRINTED CIRCUIT BOARD'S
PARTS No. 1-604-041-16

SW-58 - SOLDERING SIDE -



MP-7/SW-55/SW-58

FOR THE PRINTED CIRCUIT BOARD'S
PARTS No. 1-604-041-16

REF. NO.	TYPE	PIN NO.	
		VCC/VDD	GND
IC 1	LM358P, μ PC358C	8	4
IC 2	TC4584BP, MC14584BCP	14	7
IC 3	MB8747	22	11
IC 4	SN74LS37N	14	7
IC 5	SN74LS390N	16	8
IC 6	TC4013BP	16	8
IC 8	MBM2732-RM44V1	24	12
IC 9	LH0080	11	29
IC 10	TC4584BP, MC14584BCP	14	7
IC 11	MS4529P	14	7
IC 12	MS4529P	14	7
IC 13	MS4529P	14	7
IC 14	TC4013BP	16	8
IC 15	TC4021BP, CD4021BE	16	8
IC 16	TC4021BP, CD4021BE	16	8
IC 17	TC4013BP	16	8
IC 18	TC4040BP, CD4040BE	16	8
IC 19	TC4050BP, CD4050BE	16	8
IC 20	SN74LS139N	16	8
IC 21	MSM2128-15RS	24	12
IC 23	MB8747	22	11
IC 24	TC4021BP, CD4021BE	16	8
IC 25	MS4529P	14	7
IC 26	MS4529P	14	7
IC 27	TC4013BP	16	8
IC 28	TC4013BP	16	8
IC 29	TC4042BP, CD4042BE	16	8
IC 30	TC4042BP, CD4042BE	16	8
IC 31	TC4042BP, CD4042BE	16	8
IC 32	TC4042BP, CD4042BE	16	8
IC 33	TC4042BP, CD4042BE	16	8
IC 34	TC4042BP, CD4042BE	16	8
IC 35	SN74LS138N	16	8
IC 36	SN74LS138N	16	8
IC 37	TC4042BP, CD4042BE	16	8
IC 38	TC4042BP, CD4042BE	16	8
IC 39	(SN74LS245N)	20	10
IC 40	LH0082	24	5
IC 41	TC4042BP, CD4042BE	16	8
IC 42	TC4042BP, CD4042BE	16	8
IC 43	TC4042BP, CD4042BE	16	8
IC 44	TC4042BP, CD4042BE	16	8
IC 45	TC4013BP	16	8
IC 46	TC5012BP	16	8
IC 47	TC5012BP	16	8
IC 48	TC4013BP	16	8
IC 49	TC4042BP, CD4042BE	16	8
IC 50	TC4042BP, CD4042BE	16	8
IC 51	TC4042BP, CD4042BE	16	8
IC 52	TC4042BP, CD4042BE	16	8
IC 53	TC4013BP	16	8
IC 54	TC4013BP, CD4013BE	14	7
IC 55	TC4013BP, CD4013BE	16	8